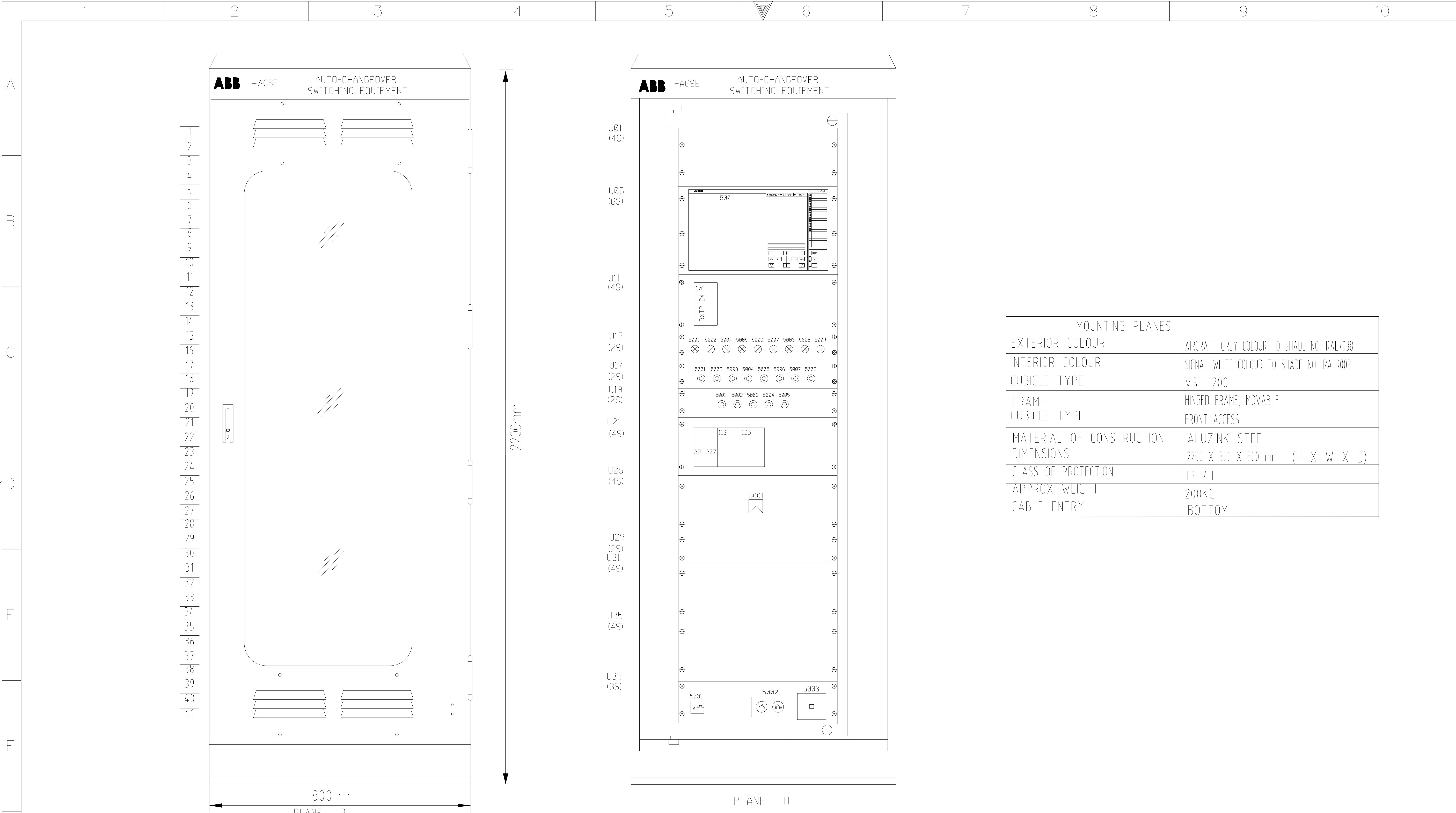


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A	<div>ABB</div> <div>POWER SYSTEMS NETWORK MANAGEMENT</div> <div>PROTECTION AND SUBSTATION AUTOMATION SYSTEMS</div> <div>WBS NO: S-13656</div>					<div>ABB AUTOMATION COMPANY LTD.,</div> <div>414, AL-KHARJ ROAD</div> <div>SECOND INDUSTRIAL CITY</div> <div>RIYADH-11383 K.S.A</div>																																																																																									
B																																																																																															
C	<div>CONTRACTOR : ABB Contracting Company</div> <div>CLIENT : National Grid sa</div> <div>PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY</div> <div>SUBSTATION : S/S 8709</div> <div>CONTRACT NO. : 11131113/00</div> <div>TITLE : Assembly Drawing - +ACSE(AUTO CHANGE OVER SWITCHING EQUIP.)</div>																																																																																														
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>																																																																																					
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	REV. NO.	DATE	DESCRIPTION																																																																																												



MOUNTING PLANES	
EXTERIOR COLOUR	AIRCRAFT GREY COLOUR TO SHADE NO. RAL7038
INTERIOR COLOUR	SIGNAL WHITE COLOUR TO SHADE NO. RAL9003
CUBICLE TYPE	VSH 200
FRAME	HINGED FRAME, MOVABLE
CUBICLE TYPE	FRONT ACCESS
MATERIAL OF CONSTRUCTION	ALUZINK STEEL
DIMENSIONS	2200 X 800 X 800 mm (H X W X D)
CLASS OF PROTECTION	IP 41
APPROX WEIGHT	200KG
CABLE ENTRY	BOTTOM

AS-BUILT BY \_\_\_\_\_ DATE \_\_\_\_\_

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

Ø1 ØØ	13 48 13 04	AS MANUFACTURED FOR APPROVAL	DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>	
			DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____	
		DESCRIPTION	OPRG. DEPT. <u>CTPD</u>	ENG. DEPT. <u>AUT-PSAC</u>

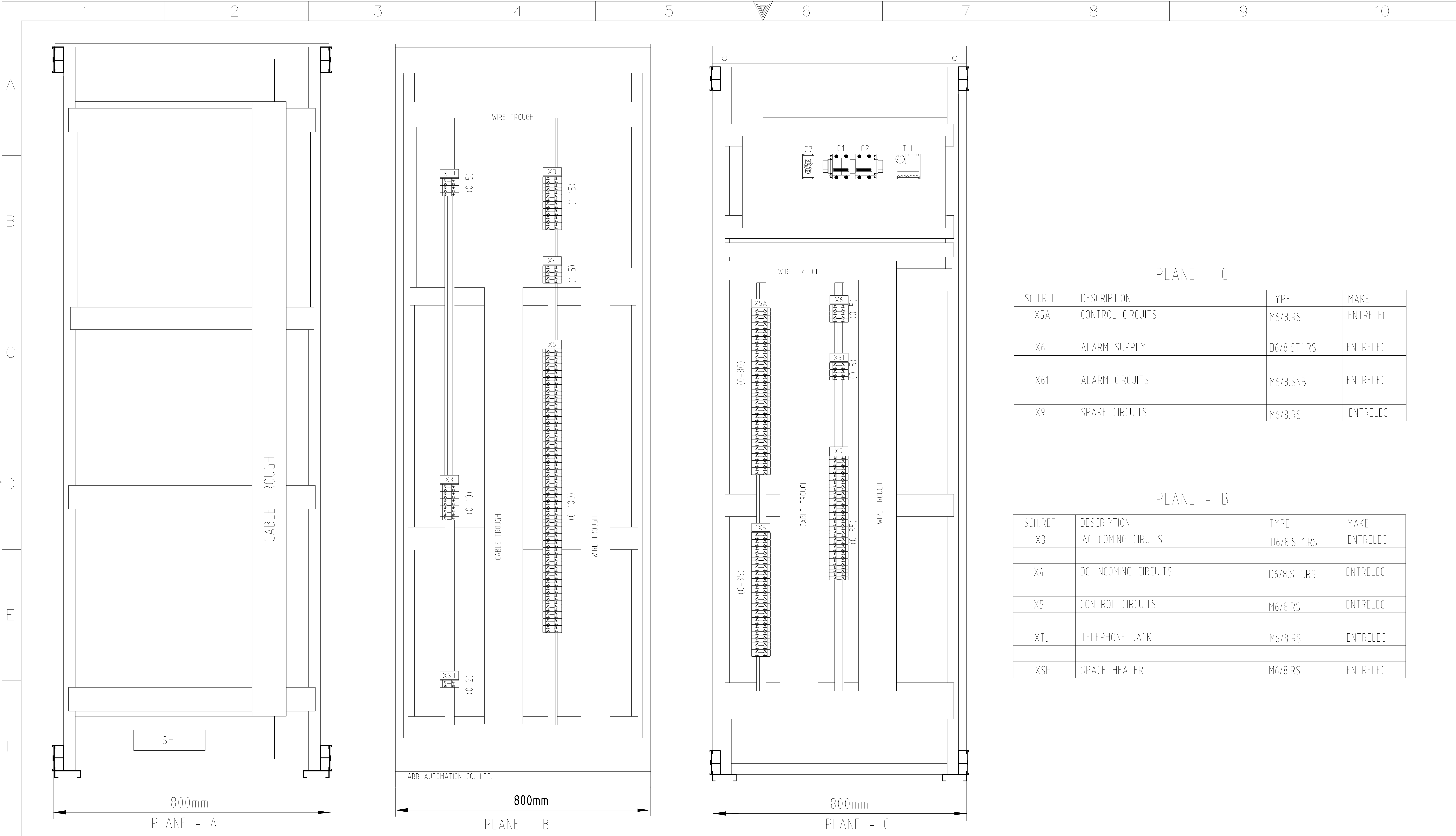
ASSEMBLY DRAWING

13.8kV AUTO CHANGE OVER SWITCHING EQUIPMENT

S/S 8709-132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء		نقل الكهرباء National Grid sa		
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	
-	C421	CD-322960	SHT	CONT.
			G01	G02
			Ø1	




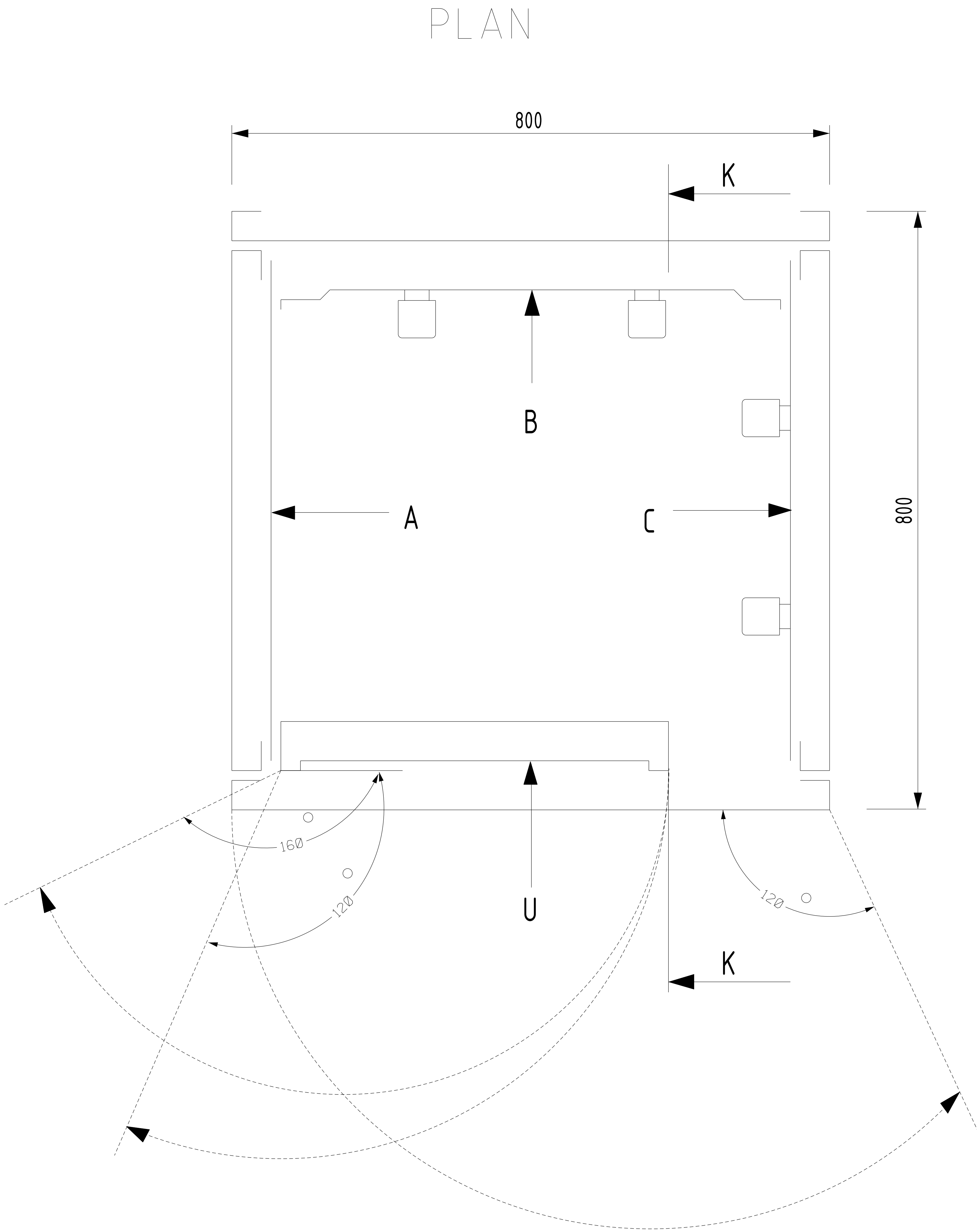
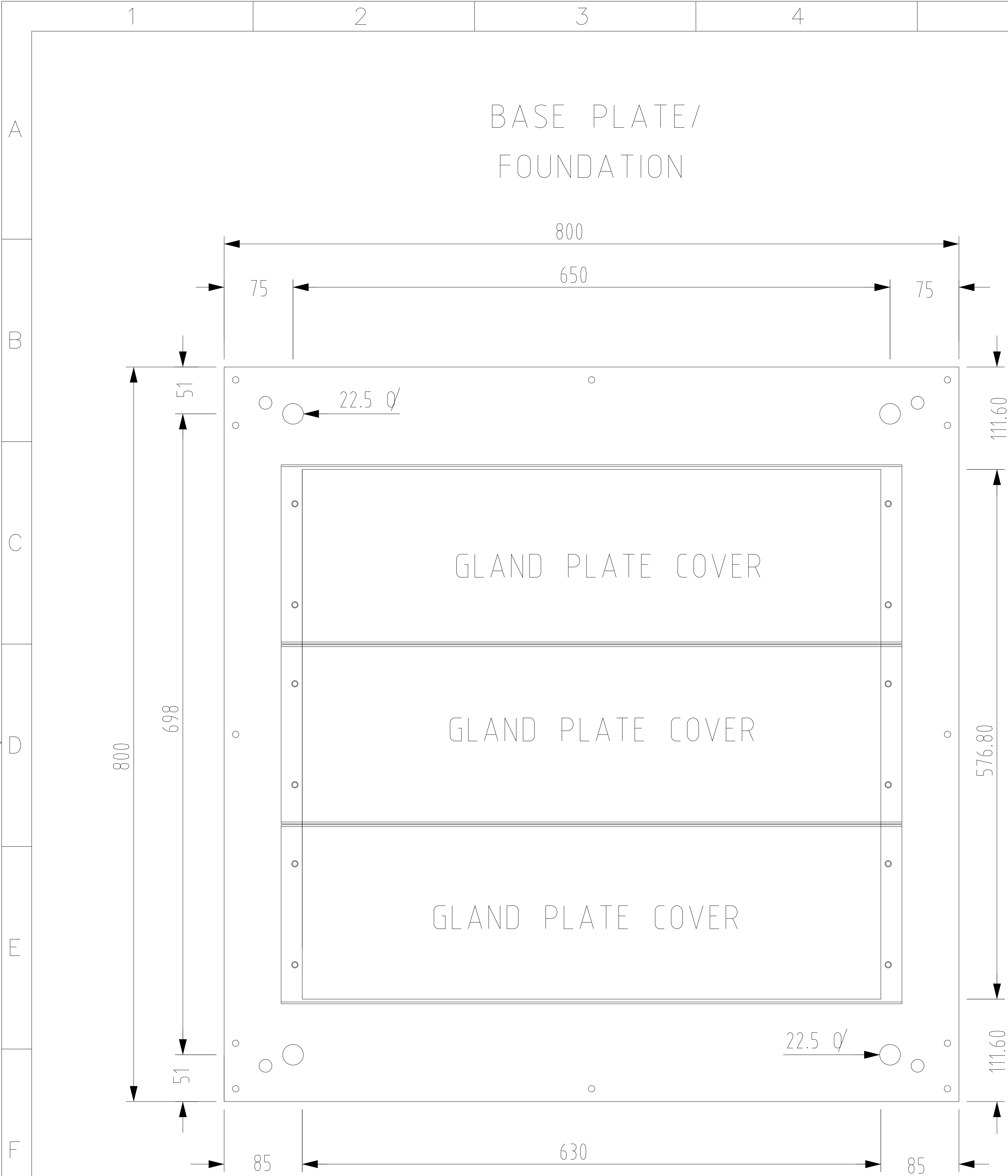
PLANE - C


SCH.REF	DESCRIPTION	TYPE	MAKE
X5A	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
X6	ALARM SUPPLY	D6/8.ST1.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.SNB	ENTRELEC
X9	SPARE CIRCUITS	M6/8.RS	ENTRELEC

PLANE - B

SCH.REF	DESCRIPTION	TYPE	MAKE
X3	AC COMING CIRUITS	D6/8.ST1.RS	ENTRELEC
X4	DC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X5	CONTROL CIRCUITS	M6/8.RS	ENTRELEC
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC

G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING			<div>الشركة الوطنية لنقل الكهرباء</div> <div> <b>نقل الكهرباء</b> National Grid sa</div>						
				DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>		13.8kV AUTO CHANGE OVER SWITCHING EQUIPT										
	01	13 48	AS MANUFACTURED		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY			INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>		RIYADH SAUDI ARABIA			-	C421	CD-322960		SHT	CONT.	01



G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ASSEMBLY DRAWING		<div>الشركة الوطنية لنقل الكهرباء</div> <div> <b>نقل الكهرباء</b> National Grid sa</div>						
	01	13 48	AS MANUFACTURED		DRAWN BY RIZ CHECKED BY KVR		13.8kV AUTO CHANGE OVER SWITCHING EQUIPT		INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY						SHT	CONT.	
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322960		G03	G04	01

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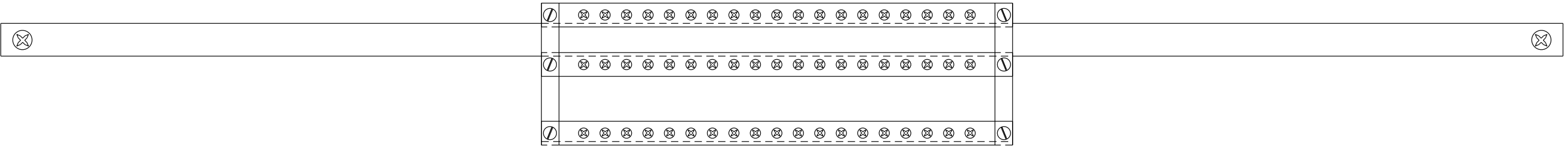
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D

E

F

G

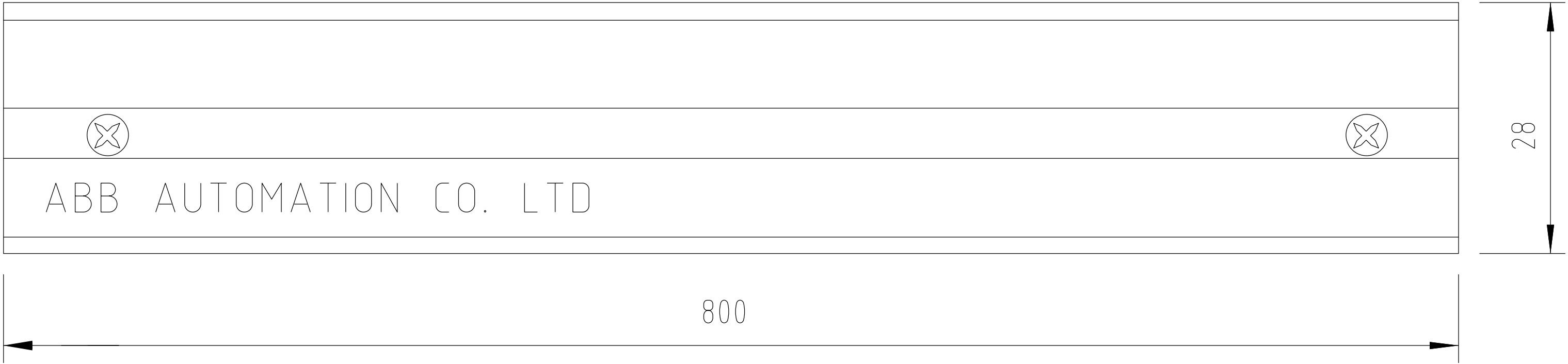


TOP VIEW FOR EARTHING BAR

U PLANE TOP LABEL



U PLANE BOTTOM LABEL



MANUFACTURING LABEL

**ABB**

ABB Automation Co.Ltd.

PROJECT : National Grid SA  
S/S 8709

ORDER REFERENCE : 2875 RF S13656

YEAR OF MANUFACTURE : 2013

PANEL NO. : +ACSE


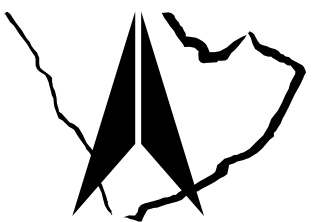
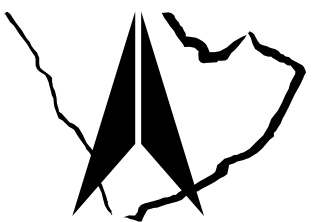
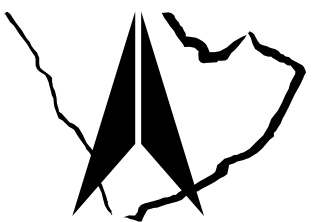
DRAWING NO. : S13656-CD-322962

MADE IN THE KINGDOM OF SAUDI ARABIA

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13020	
01	13 48	AS MANUFACTURED	DRAWN BY RIZ		CHECKED BY KVR	
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED _____	
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC	

ASSEMBLY DRAWING	
13.8kV AUTO CHANGE OVER SWITCHING EQUIPT	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء			 نقل الكهرباء National Grid SA		
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
-	C421	CD-322960	SHT G04	CONT. L00	01

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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A																																																																										
B																																																																																		
C	CONTRACTOR : ABB Contracting Company																																																																																	
	CLIENT : National Grid SA																																																																																	
D	PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY																																																																																	
	SUBSTATION : S/S 8709																																																																																	
E	CONTRACT NO. : 11131113/00																																																																																	
F	TITLE : LIST OF APPARATUS - +ACSE [AUTO CHANGE OVER SWITCHING EQUIP.]																																																																																	
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		COVER SHEET			 <b>نقل الكهرباء</b> الشركة الوطنية لنقل الكهرباء National Grid SA																																																																								
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G	AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS			<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>															
	DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR			DATE STARTED 24.01.2013			DATE COMPLETED _____			<table><tr><td>INDEX</td><td>PLANT NO.</td><td>DRAWING NUMBER</td><td colspan="2">SHEET NO.</td><td>REV. NO.</td></tr><tr><td rowspan="3">-</td><td rowspan="3">C421</td><td rowspan="3">CD-322960</td><td>SHT</td><td>CONT.</td></tr><tr><td>L01</td><td>L02</td></tr><tr><td colspan="2">01</td></tr></table>		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.	-	C421	CD-322960	SHT	CONT.	L01	L02	01	
	INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.																				
	-	C421	CD-322960	SHT	CONT.																					
				L01	L02																					
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01 13 48 AS MANUFACTURED			00 13 04 FOR APPROVAL			S/S 8709-132/13.8KV IN AL-KHARJ CITY																				
REV. NO. DATE DESCRIPTION			OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC			RIYADH SAUDI ARABIA																				

NG/D2-D (2012/01)

DMS

VECTOR

NGD200



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A														
B	SR. NO.	LOCATION REF.	SCH REF.	D E S C R I P T I O N		SHT NO.	QTY.	TYPE	MAKE	ORDERING INFORMATION				
	6	U17:5001	S01	PUSH BUTTON BLACK COLOUR WITH 1NO+1NC CONTACTS FOR 'ACSE ABORT'		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	7	U17:5002	S02	PUSH BUTTON BLACK COLOUR WITH 1NO+1NC CONTACTS FOR LED RESET		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	8	U17:5003	S03	PUSH BUTTON BLACK COLOUR UNIT FOR "ACSE-IN" CONTACTS DATA : 1NO+1NC		226	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	9	U17:5004	S04	PUSH BUTTON BLACK COLOUR UNIT FOR "ACSE-OUT" CONTACTS DATA : 1NO+1NC		226	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	10	U17:5005	S05	PUSH BUTTON BLACK COLOUR UNIT FOR "TOP-IN" CONTACTS DATA : 1NO+1NC		226	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
C	11	U17:5006	S06	PUSH BUTTON BLACK COLOUR UNIT FOR "TOP-OUT" CONTACTS DATA : 1NO+1NC		226	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	12	U17:5007 U17:5008	S07 PBLT	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TOP ABORT.		223,224A	2	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
D	13	U19:5001	S08	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TRIP ON PARALLEL REQUEST - GT-1 LV CB(S1305)		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	14	U19:5002	S09	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TRIP ON PARALLEL REQUEST - GT-2 LV CB(S1205)		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	15	U19:5003	S10	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TRIP ON PARALLEL REQUEST - GT-3 LV CB(S3605)		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
E	16	U19:5004	S11	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TRIP ON PARALLEL REQUEST - BS1 CB(S120)		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	17	U19:5005	S12	PUSH BUTTON BLACK COLOUR UNIT WITH 1NO+1NC CONTACTS FOR TRIP ON PARALLEL REQUEST - BS2 CB(S320)		223	1	MP1-10B MCBH-20	ABB	1SFA 611 100 R1006 1SFA 611 605 R1102				
	18	U21.301	K7X/K7Y	DUAL COIL AUXILARY RELAY "IN PUT DISCREPENY/ACSE FAULTY" CONTACTS : 3 NO PER COIL AUX. VOLTAGE : 110-125V DC FLAG : HAND RESET		226	1	RXSF1	ABB	RK 271 018-AN				
F	19	U21.113	ACSEX	DUAL COIL AUXILARY RELAY FOR ACSE OUT AUXILIARY VOLTAGE : 125V DC CONTACTS DATA : 7 NO,+7NC		226	1	RXMVB4	ABB	RK 251 401-AP				
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS							
	01	13 48	AS MANUFACTURED		DRAWN BY _____ RIZ _____ CHECKED BY _____ KVR		13.8kV AUTO CHANGE OVER SWITCHING EQUIPT							
	00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY							
	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA							
							INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.	
							-	C421	CD-322960		SHT L02		CONT. L03	
											01			



الشركة الوطنية لنقل الكهرباء

SHT		CONT.		01
L02	L03			

NG/D2-D (2012/01)

DMS

VECTOR

NGD200



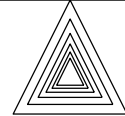
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	SR. NO.	LOCATION REF.:	SCH. REF.:	D E S C R I P T I O N		SHT NO	QTY.	TYPE	MAKE	ORDERING INFORMATION
	20	U21.125	TOPX	BISTABLE RELAY FOR TOP IN/OUT SELECTION		226	1	RXMB4	ABB	RK 251 401-AP
B				AUXILIARY VOLTAGE : 125V DC						
				CONTACTS : 7 NO.+7NC						
	21	U21.307	74/ACSE/ SPARE	DUAL TARGET RELAY (REVERSE FLAG)		226	1	RXSF1	ABB	RK 271 019-AN
				"ACSE SUPPLY FAIL"						
				CONTACTS : 1N/O + 2 N/C ON EACH COIL						
C				AUX. VOLTAGE : 110-125V DC						
				FLAG : SELF RESET						
	22		C1,C2	MINIATURE CIRCUIT BREAKER, 2 POLE, 10A FOR CONVENIENCE OUTLET		211	2	S-202P-K10	ABB	2 CDS 252 001 R0427
				WITH AUXILIARY SWITCH, 1NO + 1NC CONTACTS				S2C-H11L		GH S270 1917 R0001
D	23		C3	THERMOSTAT FOR SPACE HEATER, 5-60°C		211	1	SK 3110	RITTAL	SK 3110
	24	U39.5003	TJ	TELEPHONE JACK			1	EDF410	EDISON	EDF410
	25		C7	ON/OFF SWITCH FOR SPACE HEATER		211	1	M2SS1-10B	ABB	1SFA 611 200 R1006
E								MCBH-10		1SFA 611 605 R1101
	26		SH	SPACE HEATER, 150W, 120V, 60Hz		211	1	MICA	GRUPPO	1FZEK006C001
	27		DS	DOOR SWITCH FOR CONTROL OF CUBICLE INTERNAL ILLUM. LAMP		211	1	LS30P	ABB	1SBV010213R1202
F	28		IL	INTERNAL ILLUMINATION CUBICLE LAMP SUITABLE FOR 127V		211	1	T4	SUNON	SP-20W
				60HZ SUPPLY						
	29	U39.5001	Q1	MCB 2 POLE 6A, FOR DC SUPPLY WITH		213	1	S282 UC K6	ABB	GH S282 0164 R0317
				2NC AUX. CONTACT ACSE 35/64 SUPPLY				S2-H02		GH S270 1916 R0003
G										
	30	U39.5002	C01,C02	CONVENIENCE OUTLET 10A, 127V, 220V AC		211	1	USM45 &	LEGRAND	74140 & 74180
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B	<table><tr><th>SR. NO.</th><th>LOCATION REF.</th><th>SCH. REF.</th><th>D E S C R I P T I O N</th><th>SHT</th><th>QTY.</th><th>TYPE</th><th>MAKE</th><th>ORDERING INFORMATION</th></tr><tr><td>31</td><td></td><td>X3</td><td>SPRING LOADED TERMINAL BLOCKS FOR AC CIRCUITS</td><td>302</td><td>10</td><td>D6/8.ST1.RS</td><td>ENTRELEC</td><td>1SNA 115 831 R0400</td></tr><tr><td></td><td></td><td>X4</td><td>SPRING LOADED TERMINAL BLOCKS FOR DC CIRCUITS</td><td>302</td><td>5</td><td>D6/8.ST1.RS</td><td>ENTRELEC</td><td>1SNA 115 831 R0400</td></tr><tr><td></td><td></td><td>X5</td><td>SPRING LOADED TERMINAL BLOCKS FOR CONTROL &amp; PROT CIRCUITS</td><td>302</td><td>80</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>X5A</td><td>SPRING LOADED TERMINAL BLOCKS FOR CONTROL &amp; PROT CIRCUITS</td><td>302</td><td>65</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>X6</td><td>SPRING LOADED TERMINAL BLOCKS FOR LOCAL ALARM / INDICATION</td><td>302</td><td>5</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>X9</td><td>SPRING LOADED TERMINAL BLOCKS FOR SPARE</td><td>302</td><td>35</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>XSH</td><td>SPRING LOADED TERMINAL BLOCKS FOR SPACE HEATER</td><td>302</td><td>3</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr><tr><td></td><td></td><td>XTJ</td><td>SPRING LOADED TERMINAL BLOCKS FOR STN COMMON ALARM</td><td>302</td><td>5</td><td>M6/8.RS</td><td>ENTRELEC</td><td>1SNA 115 685 R1200</td></tr></table>										SR. NO.	LOCATION REF.	SCH. REF.	D E S C R I P T I O N	SHT	QTY.	TYPE	MAKE	ORDERING INFORMATION	31		X3	SPRING LOADED TERMINAL BLOCKS FOR AC CIRCUITS	302	10	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400			X4	SPRING LOADED TERMINAL BLOCKS FOR DC CIRCUITS	302	5	D6/8.ST1.RS	ENTRELEC	1SNA 115 831 R0400			X5	SPRING LOADED TERMINAL BLOCKS FOR CONTROL & PROT CIRCUITS	302	80	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			X5A	SPRING LOADED TERMINAL BLOCKS FOR CONTROL & PROT CIRCUITS	302	65	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			X6	SPRING LOADED TERMINAL BLOCKS FOR LOCAL ALARM / INDICATION	302	5	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			X9	SPRING LOADED TERMINAL BLOCKS FOR SPARE	302	35	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			XSH	SPRING LOADED TERMINAL BLOCKS FOR SPACE HEATER	302	3	M6/8.RS	ENTRELEC	1SNA 115 685 R1200			XTJ	SPRING LOADED TERMINAL BLOCKS FOR STN COMMON ALARM	302	5	M6/8.RS	ENTRELEC	1SNA 115 685 R1200
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	REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. _____ CTPD _____ ENG. DEPT. _____ AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322960

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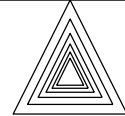
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A			POWER SYSTEMS NETWORK MANAGEMENT PROTECTION AND SUBSTATION AUTOMATION SYSTEMS WBS NO: S-13656					ABB AUTOMATION COMPANY LTD., 414, AL-KHARJ ROAD SECOND INDUSTRIAL CITY RIYADH-11383 K.S.A		
B										
C	CONTRACTOR : ABB Contracting Company									
	CLIENT : National Grid SA									
D	PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY									
	SUBSTATION : S/S 8709									
E	CONTRACT NO. : 11131113/00									
F	TITLE : SCHEMATICS DRAWINGS +ACSE (AUTO CHANGE OVER SWITCHING EQUIPT.)									
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CONTENTS SHEET		<div>الشركة الوطنية لنقل الكهرباء National Grid SA</div>	
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	REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.		REV. NO.
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LEGENDS

±R1

±R2

±R3

±IT

FL

BB RS±

BB CBF±/CBF±

R

CR

ECC

LOCAL

REMOTE

ON

OFF

A

T

S

CS

CT

LS

LT

LC

LO

RO

DC SUPPLY - MAIN PROTECTION

DC SUPPLY - SECONDARY PROTECTION

DC SUPPLY - BACK UP PROTECTION

DC SUPPLY - INTER TRIP

DC SUPPLY - FLASHING CIRCUIT

DC SUPPLY - BUS BAR - PROTECTION RESET

DC SUPPLY - CBF PROTECTION

RESET BUS - ALARM SYSTEM

CONTROL ROOM

ENERGY CONTROL CENTRE

THE LOCATION OF CONTROLLED DEVICE

ANY OTHER LOCATION NOT LOCAL

CB NORMALLY OPEN AUXILIARY CONTACT

CB NORMALLY CLOSED AUXILIARY CONTACT

COMMON

TEST POSITION

SERVICE POSITION

CLOSE IN SERVICE POSITION

CLOSE IN TEST POSITION

LOCAL SERVICE

LOCAL TEST

LOCAL CLOSE

LOCAL OPEN

REMOTE OPEN

NOTES

LABELS

WHITE LABEL WITH BLACK LETTERING WILL BE PROVIDED FOR ALL MOUNTED APPARATUS EQUIPMENT IDENTIFICATION AND FUNCTION REFERENCE LABEL WILL BE PROVIDED FOR FRONT MOUNTED EQUIPMENTS OF THE PANEL AND EQUIPMENT IDENTIFICATION LABEL WILL BE PROVIDED FOR INTERNALLY MOUNTED EQUIPMENTS

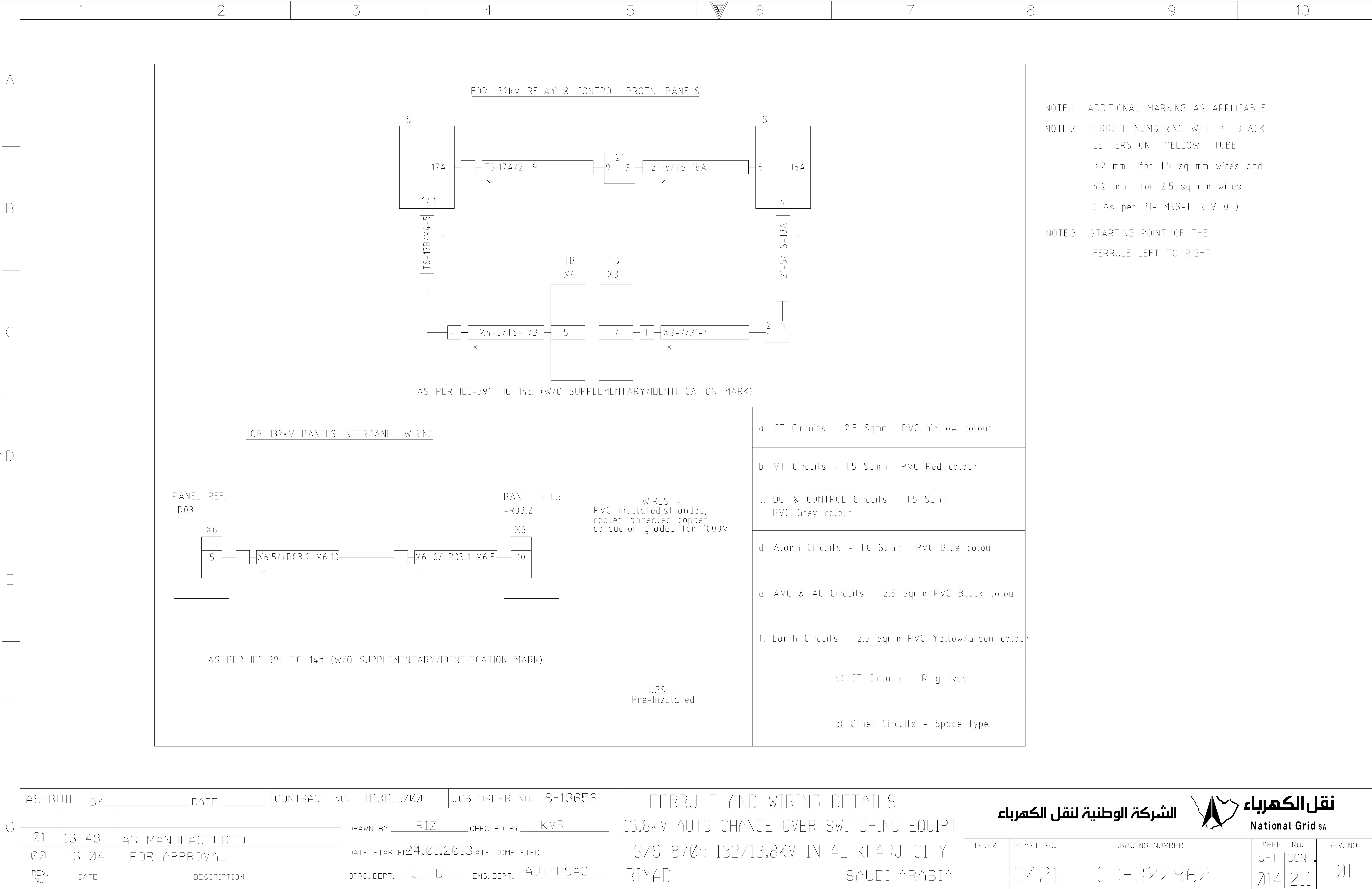
LUGS

A. CT CIRCUITS- RING TYPE  
B. OTHER CIRCUITS - SPADE TYPE

FERULLING

YELLOW TUBE 3.2 mm FOR 1.5SQ mm WIRES AND 4.2 FOR 2.5 SQ mm WIRES ( AS PER 31 - TMSS-1, RE.0 )

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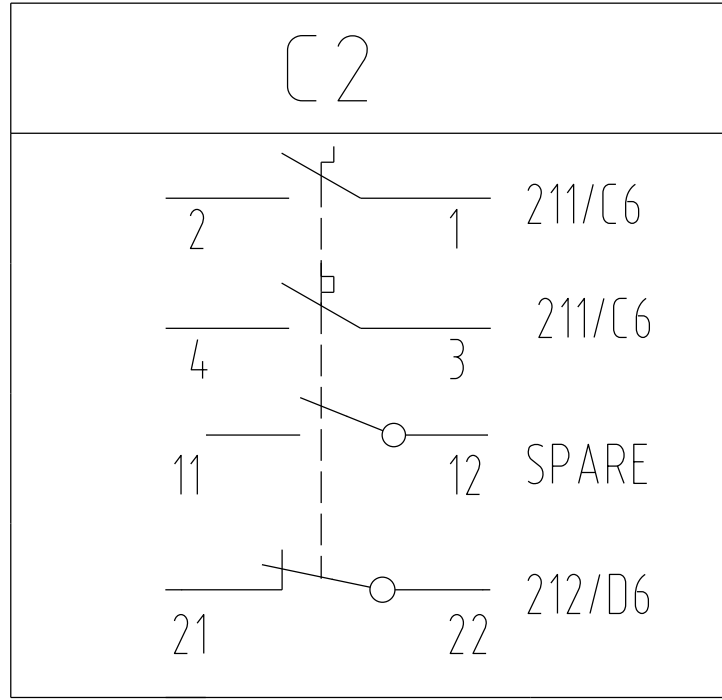
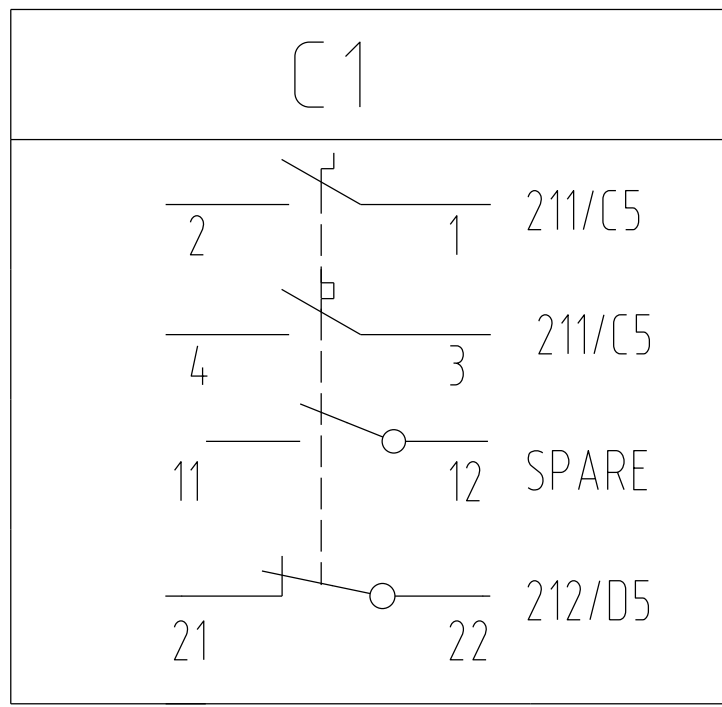
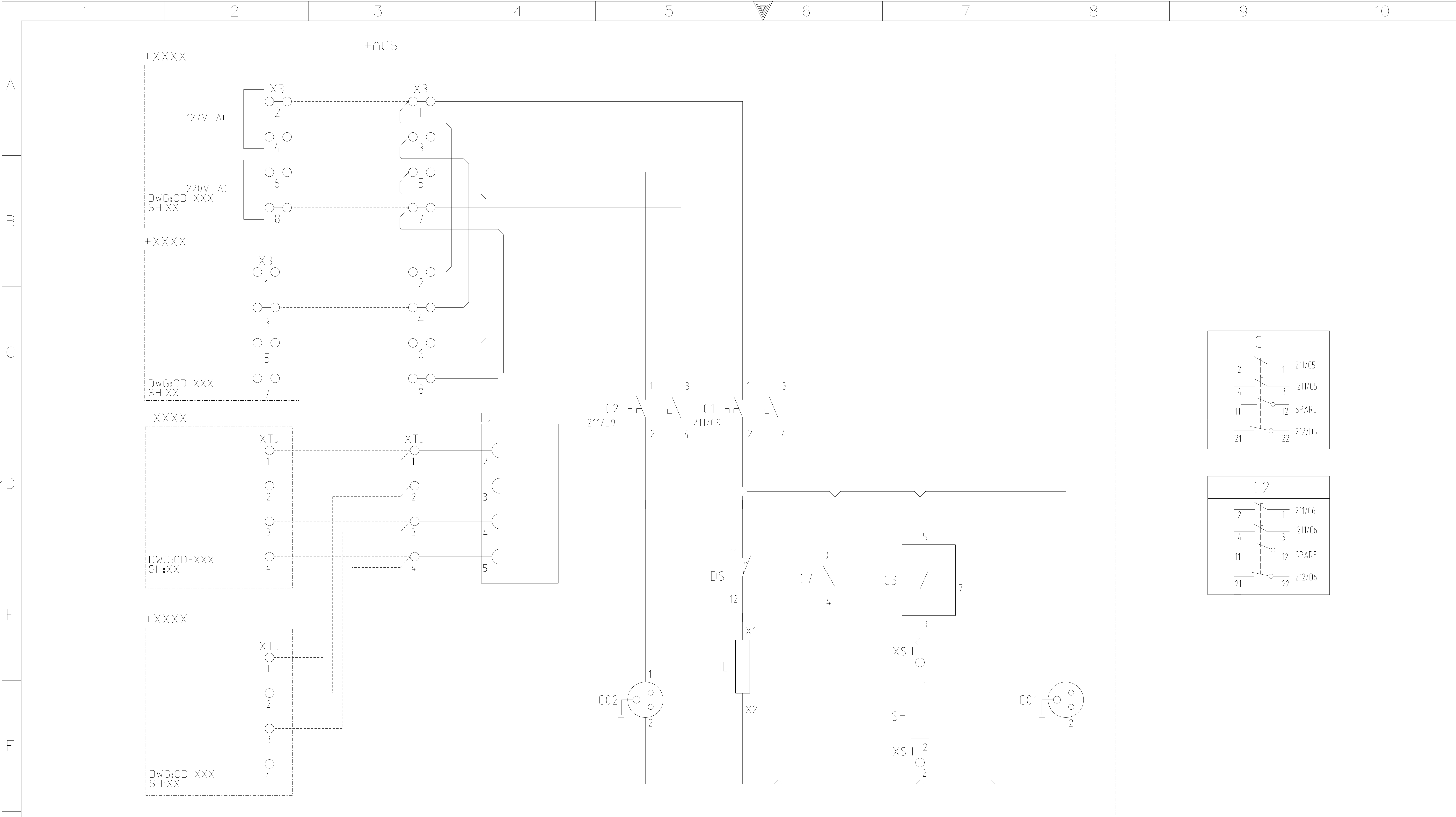
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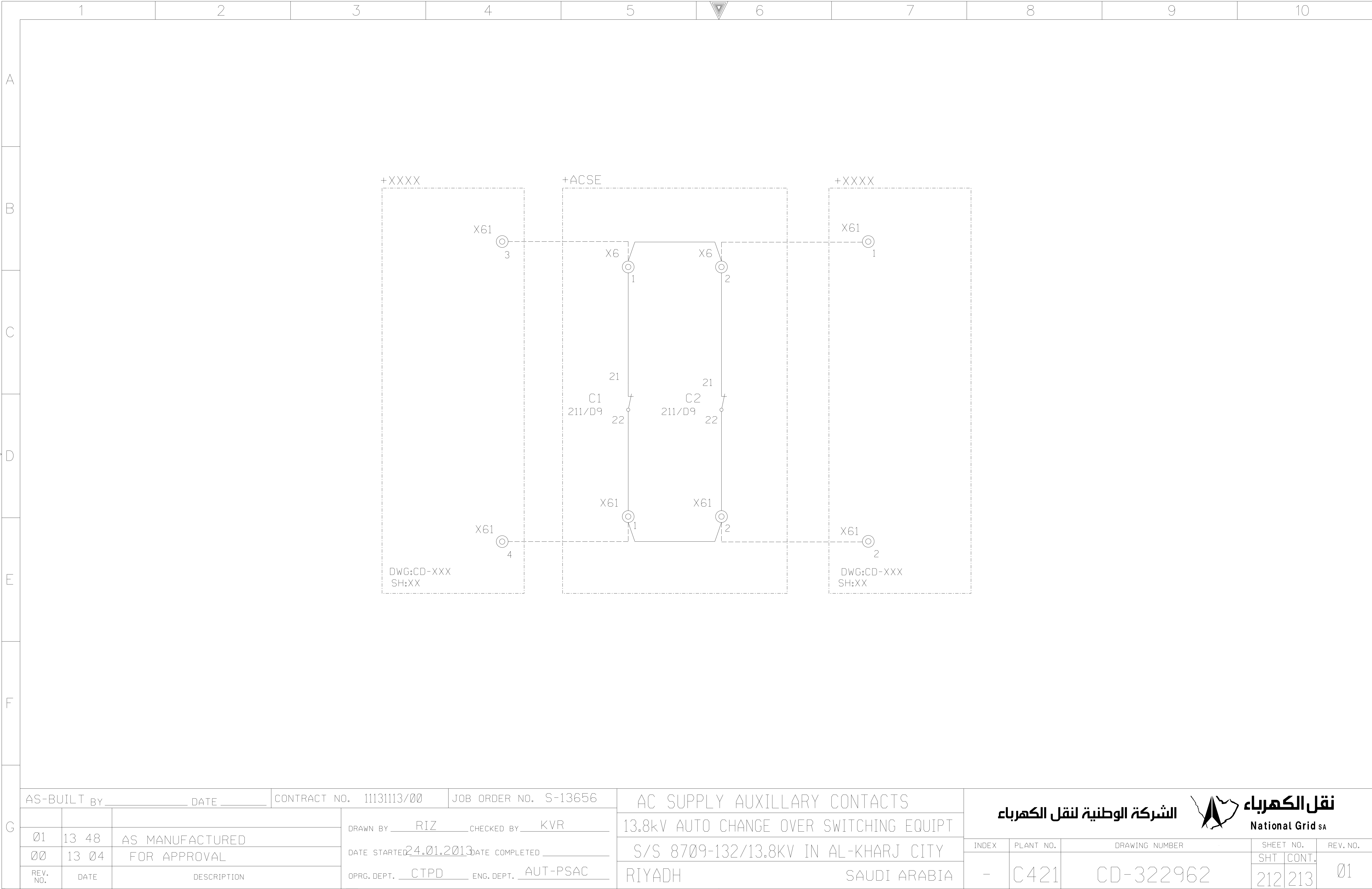
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00	13 04	FOR APPROVAL		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____			S/S 8709-132/13.8KV IN AL-KHARJ CITY					
REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. <u>  CTPD  </u> ENG. DEPT. <u>  AUT-PSAC  </u>			RIYADH SAUDI ARABIA					
INDEX	PLANT NO.	DRAWING NUMBER			SHEET NO.		REV. NO.					
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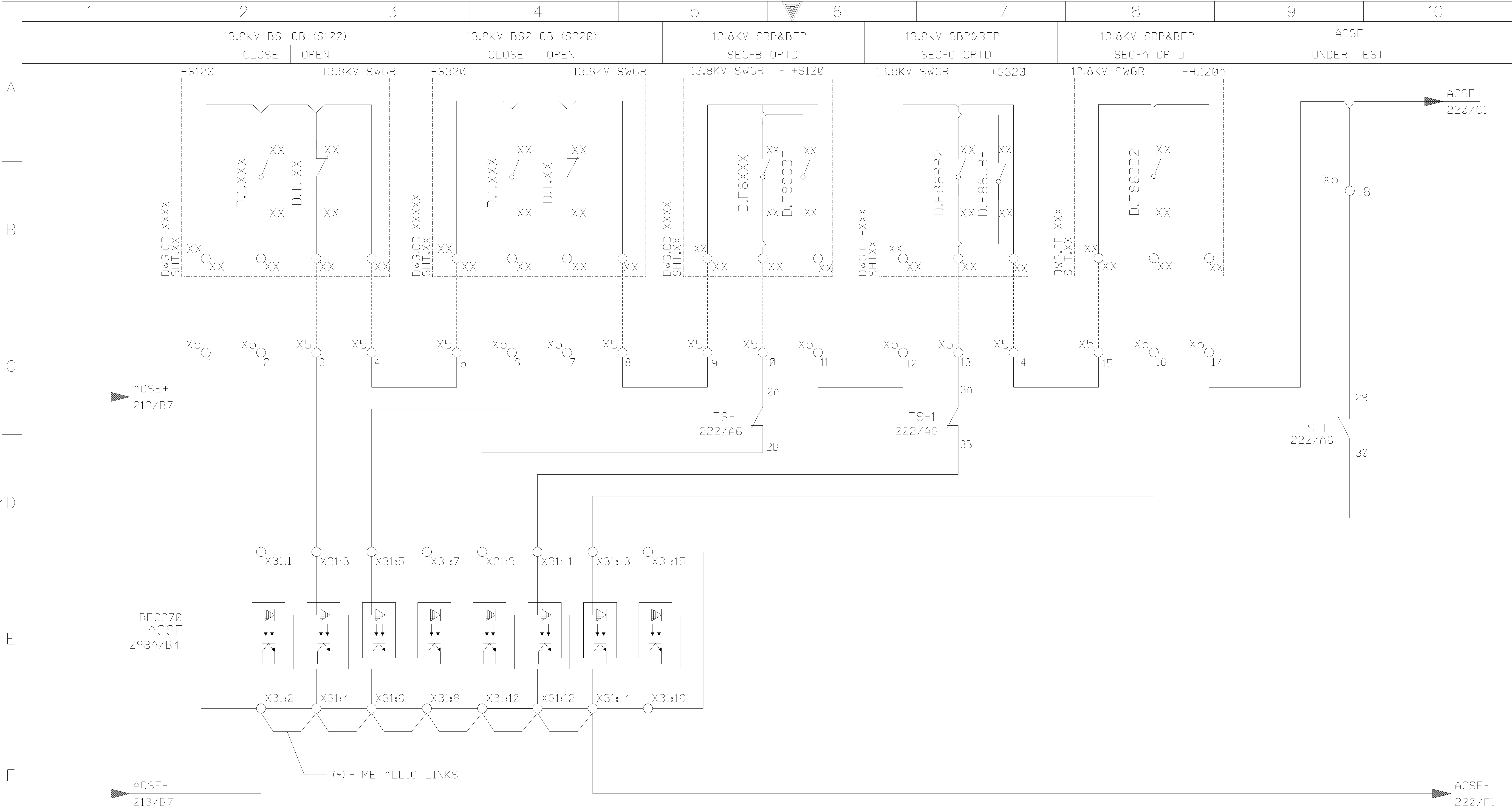
DMS


VECTOR

NGD200

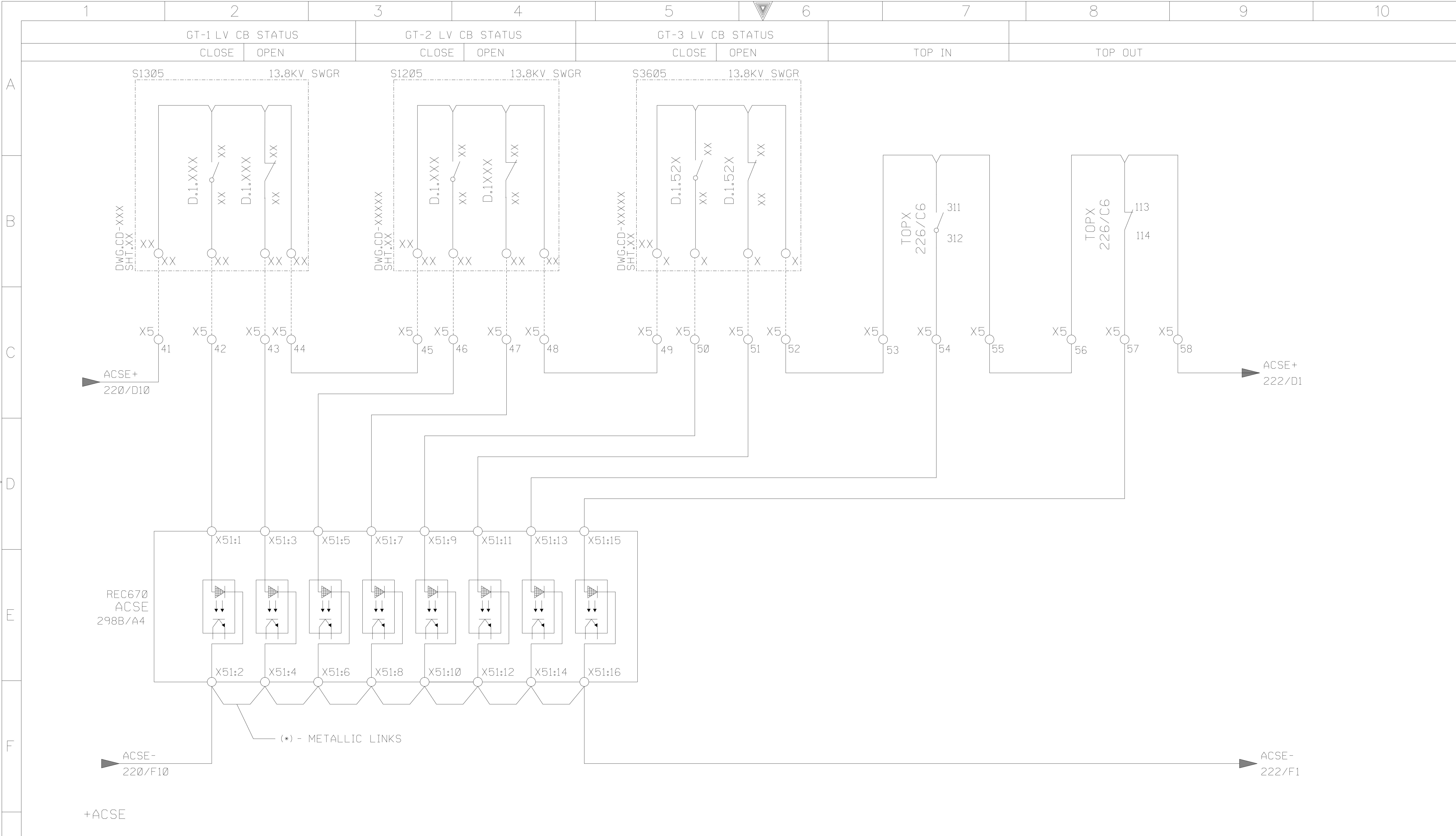







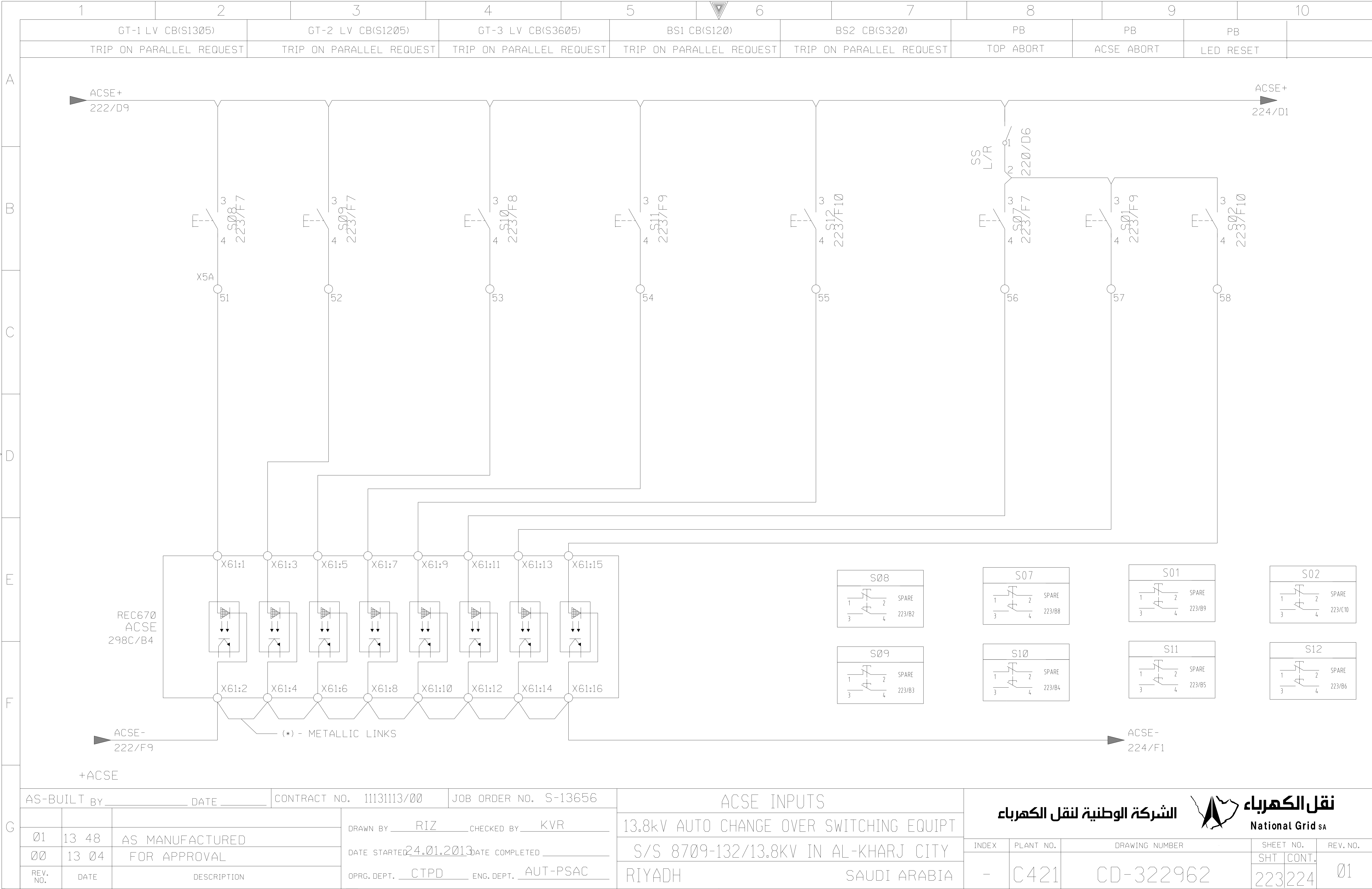
G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ACSE INPUTS		<div>الشركة الوطنية لنقل الكهرباء</div> <div> <b>نقل الكهرباء</b> National Grid sa</div>						
					DRAWN BY <u>RIZ</u> CHECKED BY <u>KVR</u>		13.8kV AUTO CHANGE OVER SWITCHING EQUIPT								
	01	13 48	AS MANUFACTURED		DATE STARTED <u>24.01.2013</u> DATE COMPLETED _____		S/S 8709-132/13.8KV IN AL-KHARJ CITY								
	00	13 04	FOR APPROVAL		OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>		RIYADH SAUDI ARABIA								
	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
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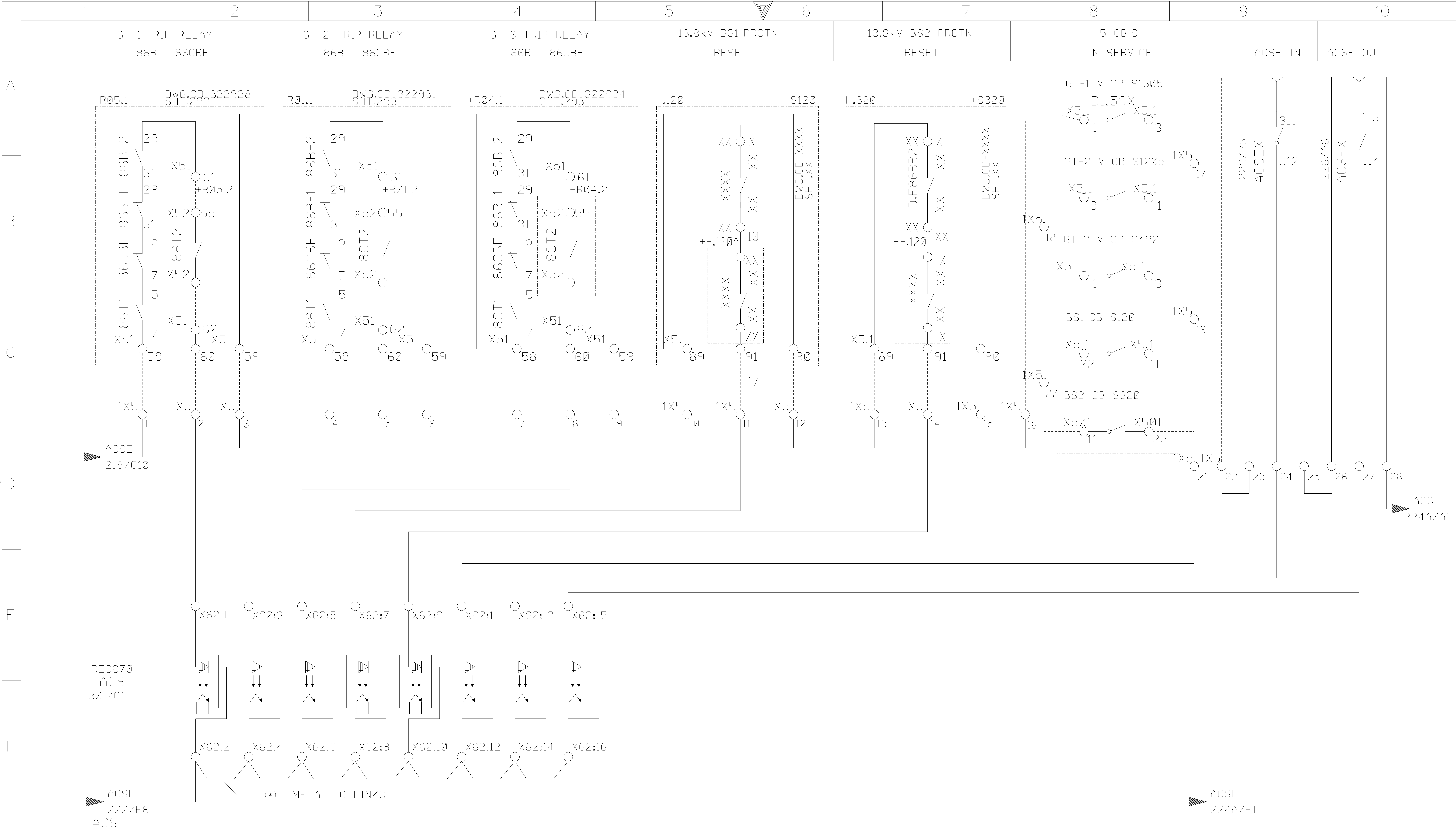


G	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		ACSE INPUTS		<div>الشركة الوطنية لنقل الكهرباء</div> <div>نقل الكهرباء</div> <div>National Grid sa</div>						
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	00	13 04	FOR APPROVAL		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-322962		SHT 221	CONT. 222	01
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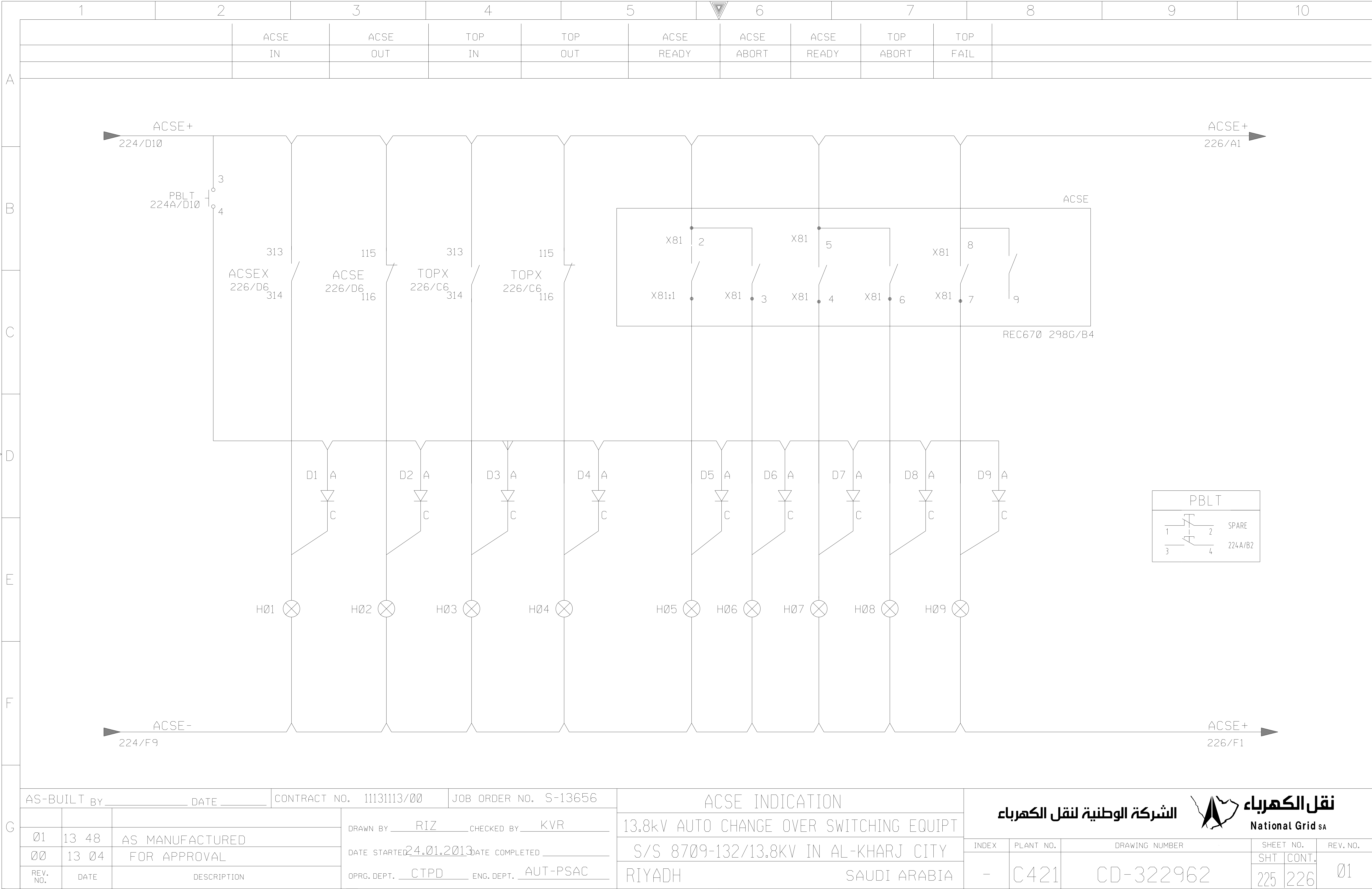


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	REV. NO.	DATE	DESCRIPTION						INDEX	PLANT NO.	DRAWING NUMBER		SHEET NO.		REV. NO.
									-	C421	CD-322962		SHT 224	CONT. 225	01





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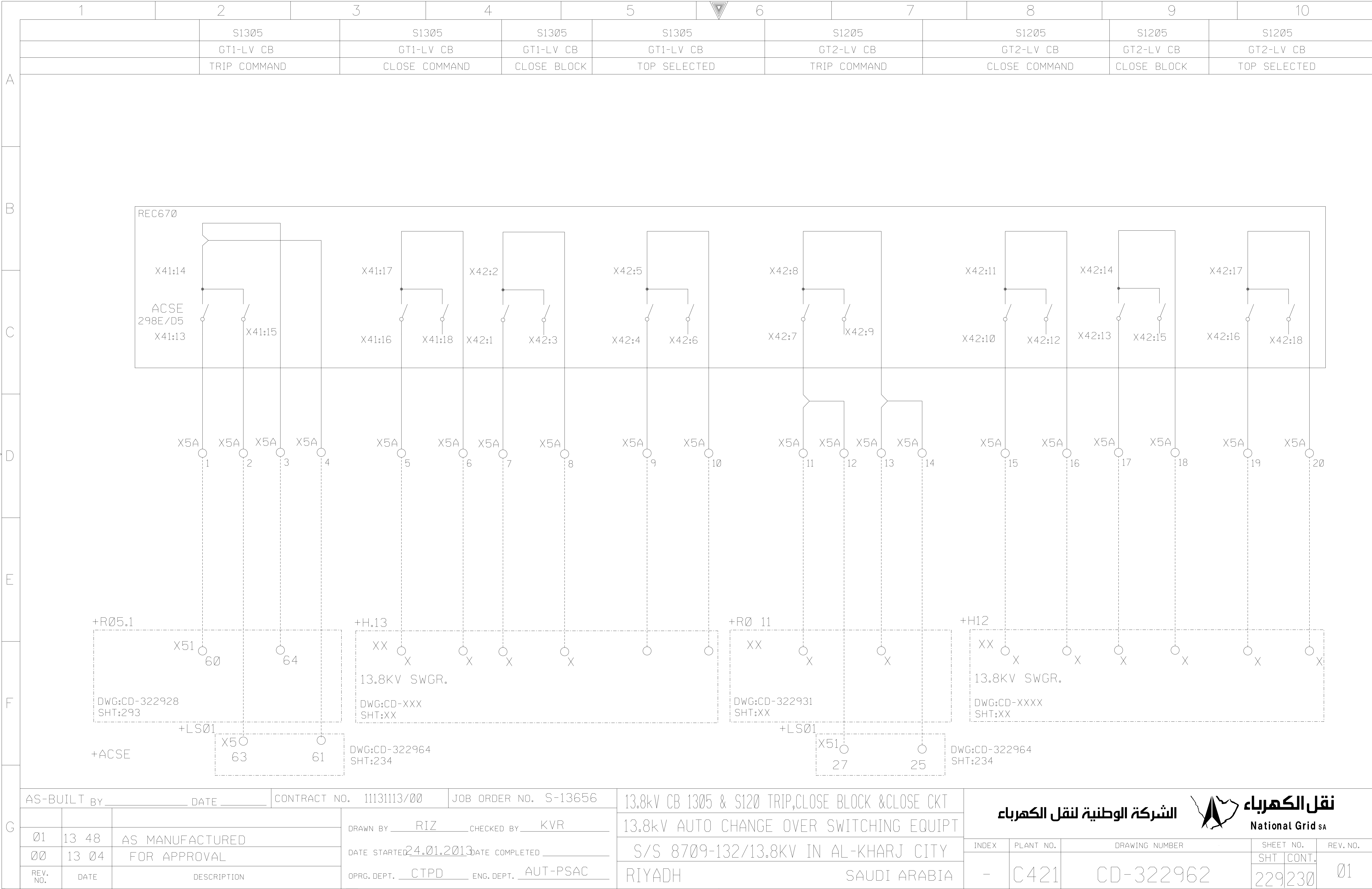
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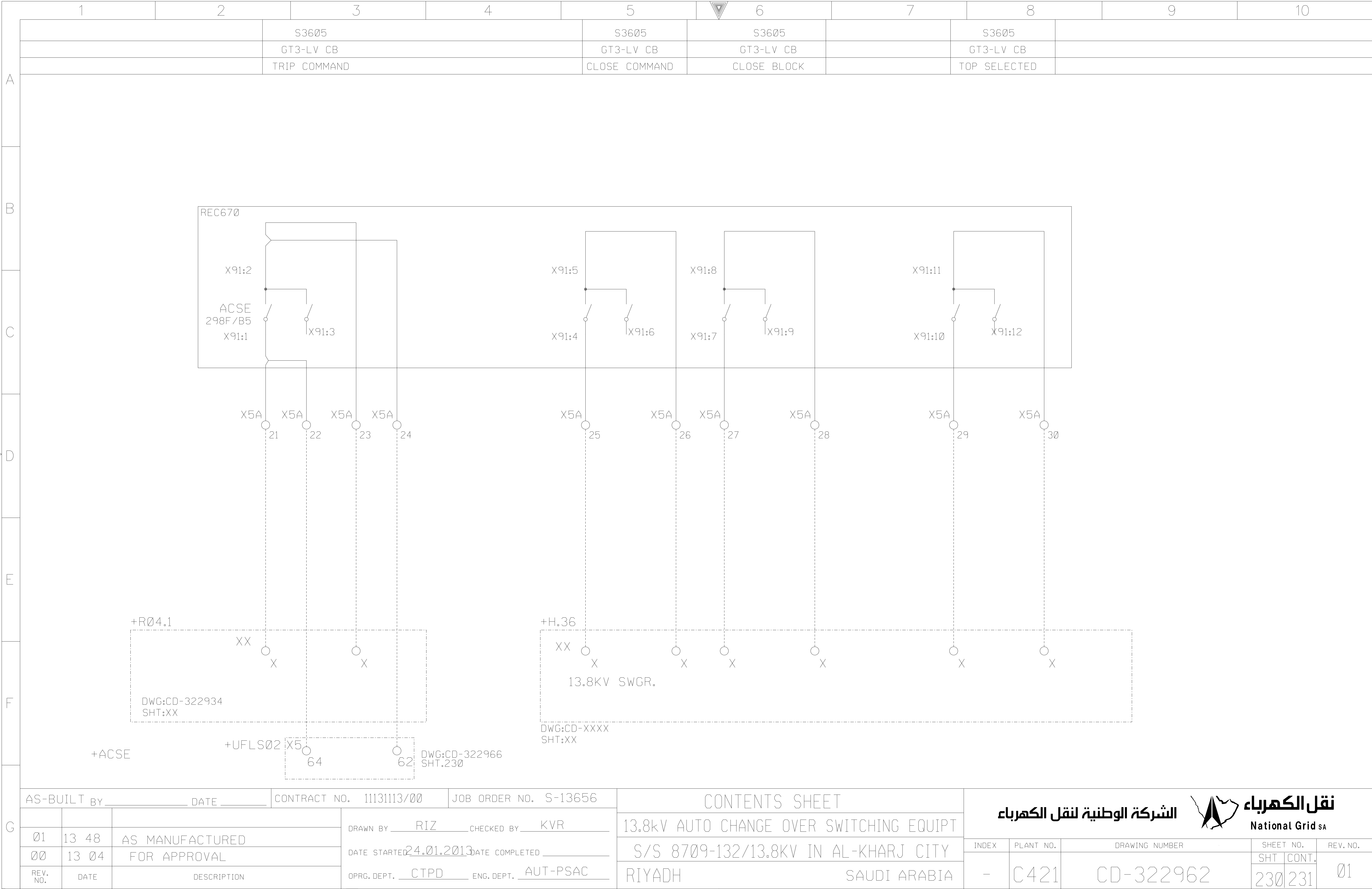
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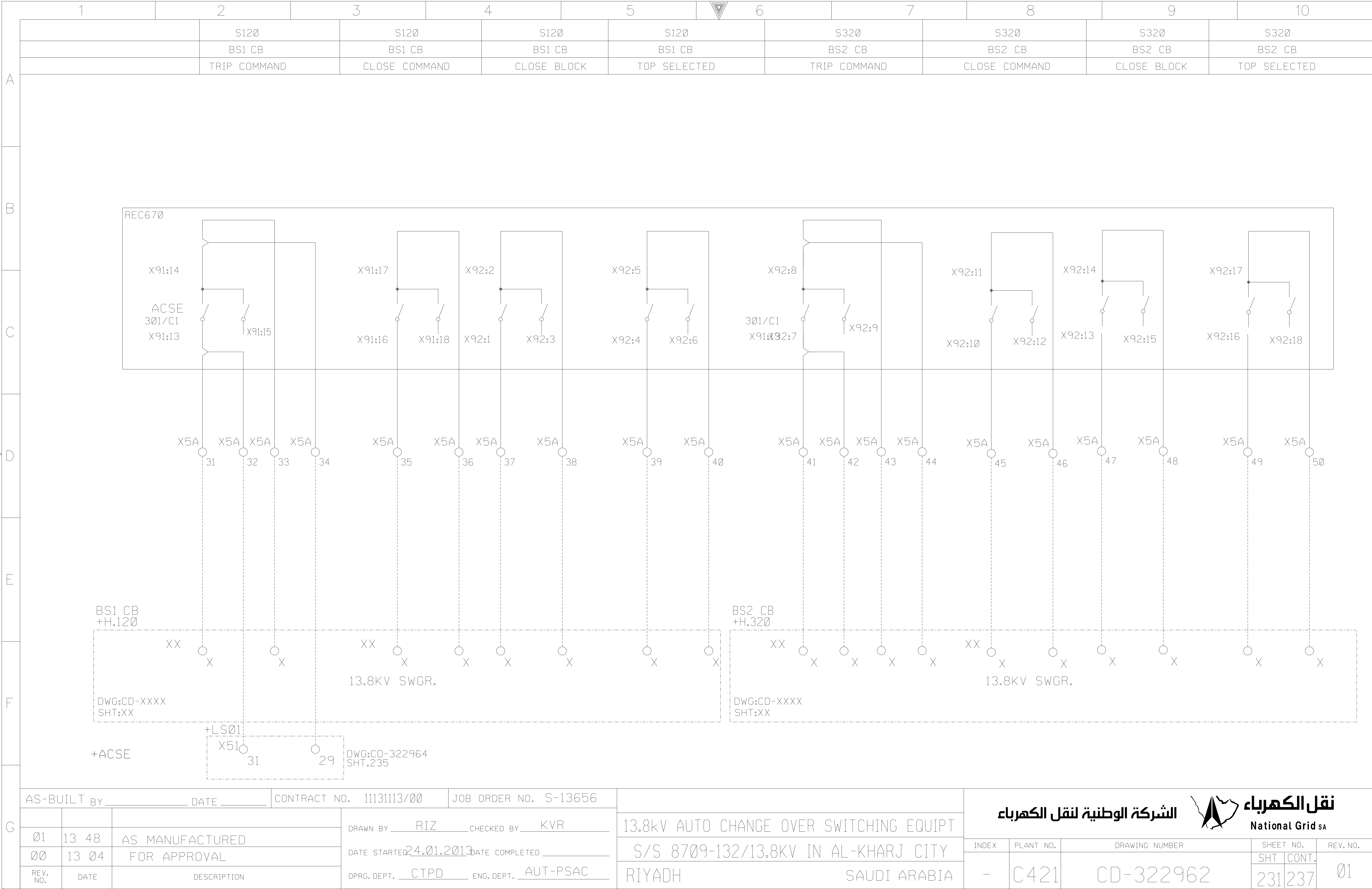
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REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. <u>CTPD</u> ENG. DEPT. <u>AUT-PSAC</u>			


CONTENTS SHEET	
13.8kv AUTO CHANGE OVER SWITCHING EQUIPT	
S/S 8709-132/13.8KV IN AL-KHARJ CITY	
RIYADH	SAUDI ARABIA

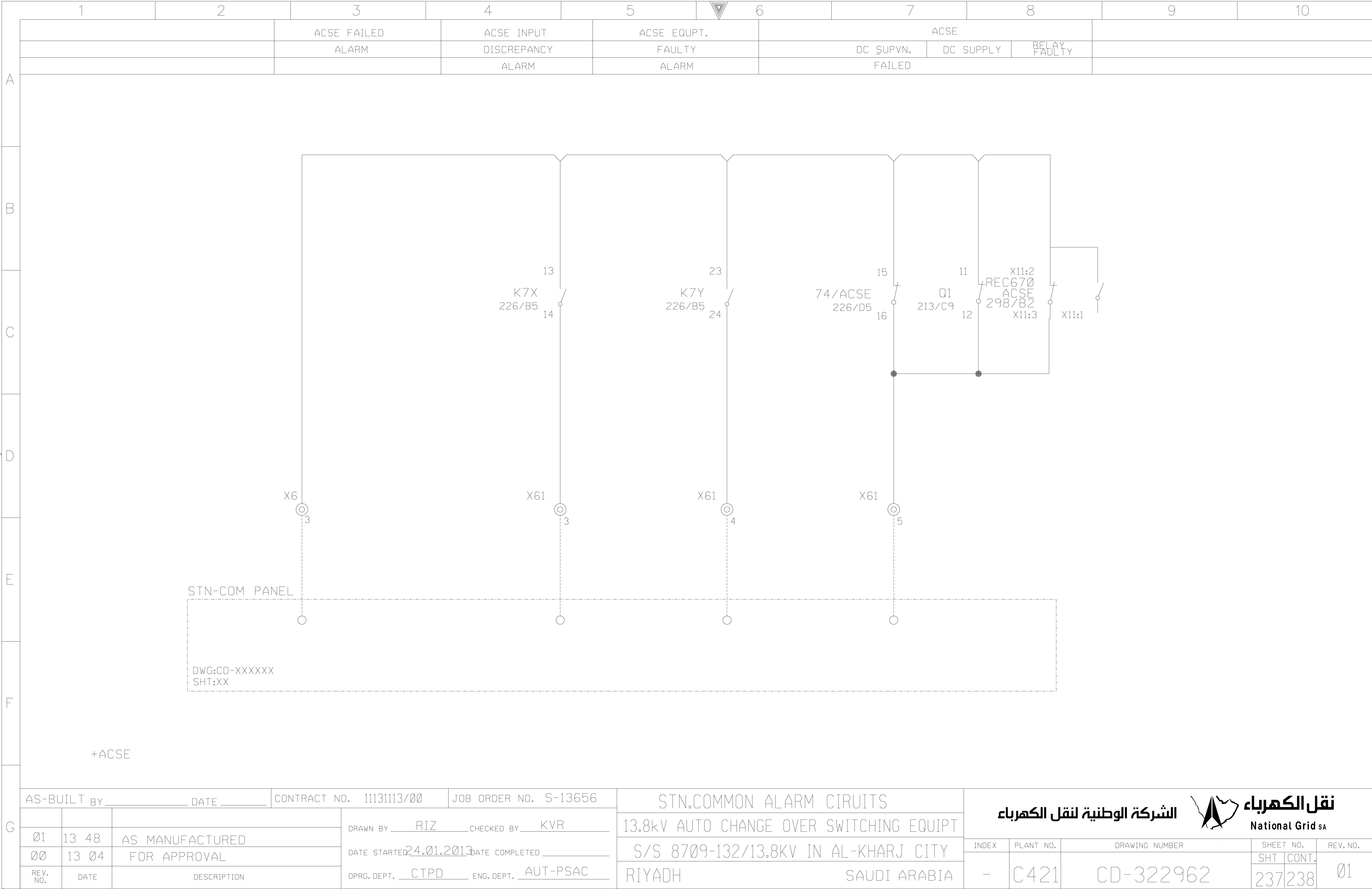
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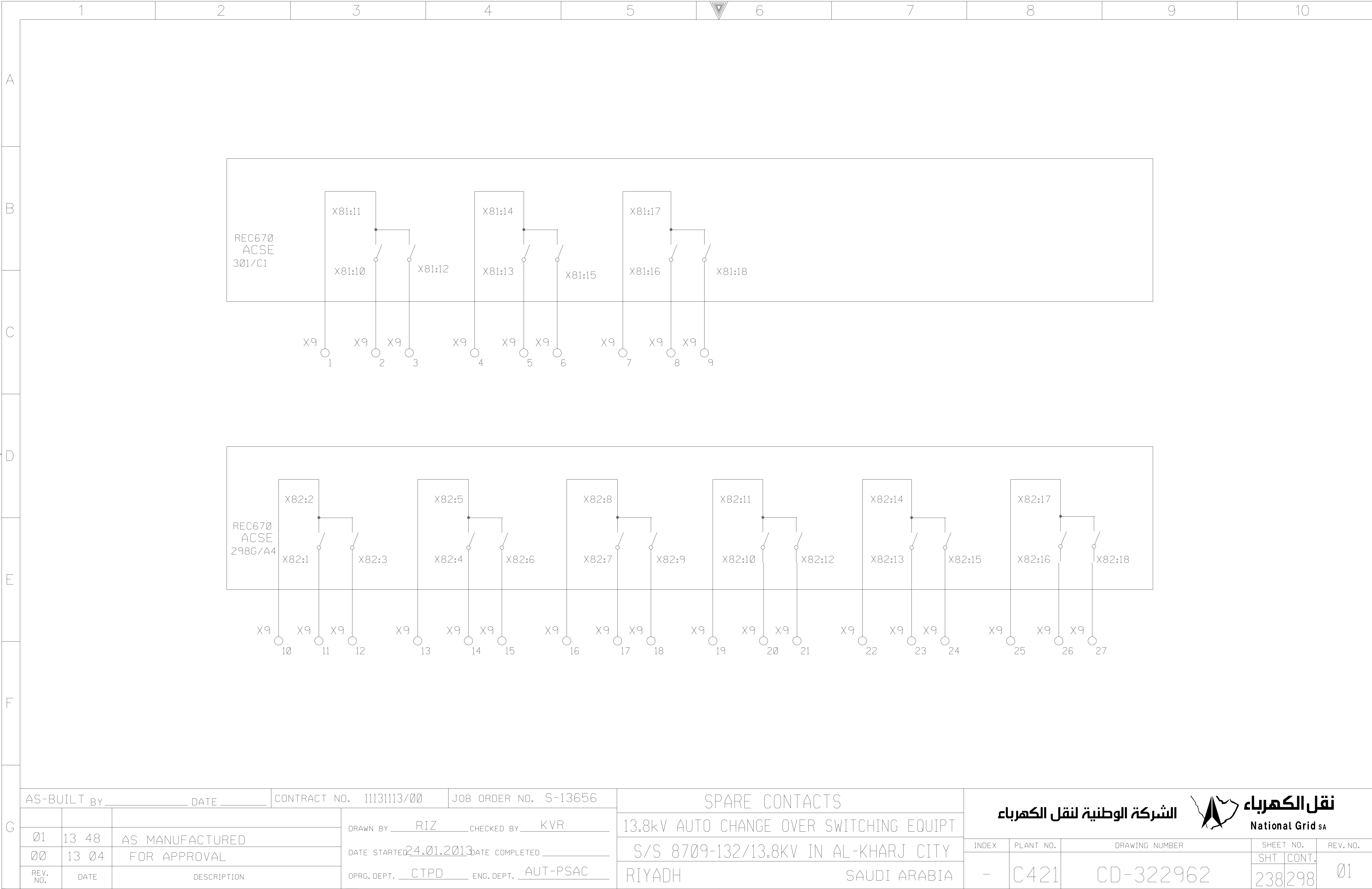
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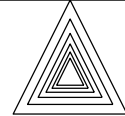
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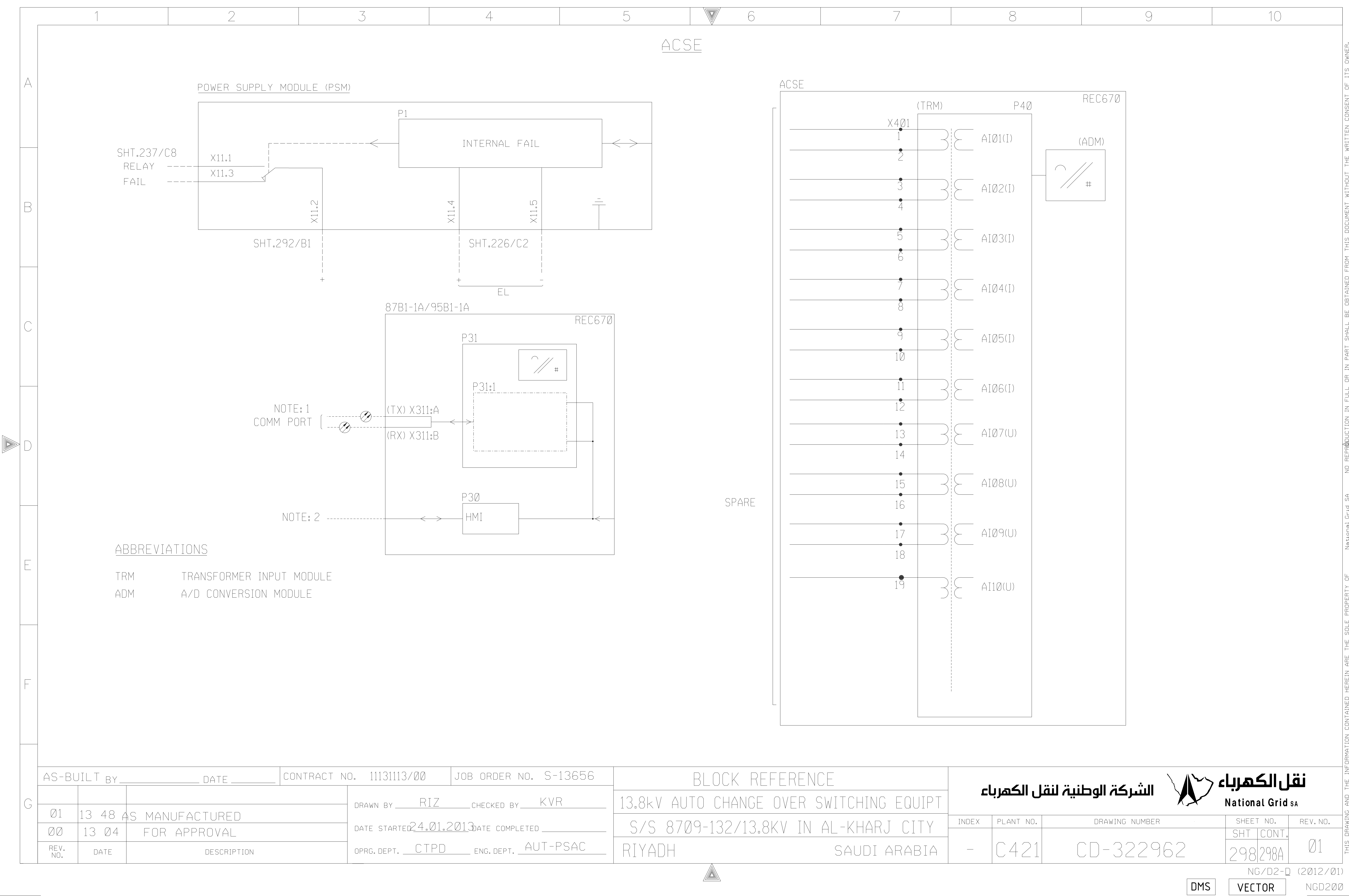
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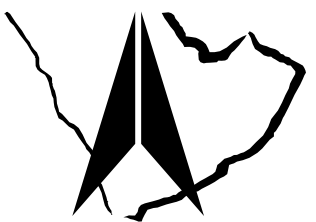
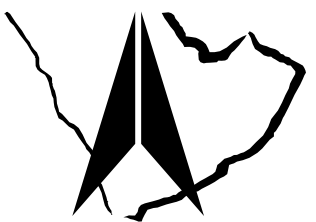
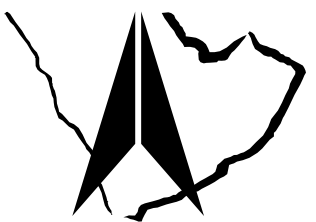
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C	<div><div>ACSE</div><div>BIM P3 REC670</div><table><thead><tr><th colspan="4"></th><th>LOCATION=P3</th><th>PLANT ADAPTED CONFIGURATION</th></tr></thead><tbody><tr><td>SHT.219/C2</td><td>{</td><td>+</td><td>-----</td><td>X31</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>1</td><td>BI.01</td><td>// S120 CLOSE</td></tr><tr><td>SHT.219/C2</td><td>{</td><td>+</td><td>-----</td><td>2</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>3</td><td>BI.02</td><td>// S120 OPEN</td></tr><tr><td>SHT.219/C3</td><td>{</td><td>+</td><td>-----</td><td>4</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>5</td><td>BI.03</td><td>// S320 CLOSE</td></tr><tr><td>SHT.219/C3</td><td>{</td><td>+</td><td>-----</td><td>6</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>7</td><td>BI.04</td><td>// S320 OPEN</td></tr><tr><td>SHT.219/C4</td><td>{</td><td>+</td><td>-----</td><td>8</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>9</td><td>BI.05</td><td>// SEC-B OPTD</td></tr><tr><td>SHT.219/C4</td><td>{</td><td>+</td><td>-----</td><td>10</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>11</td><td>BI.06</td><td>// SEC-C OPTD</td></tr><tr><td>SHT.219/C5</td><td>{</td><td>+</td><td>-----</td><td>12</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>13</td><td>BI.07</td><td>// SEC-A OPTD</td></tr><tr><td>SHT.219/C5</td><td>{</td><td>+</td><td>-----</td><td>14</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>15</td><td>BI.08</td><td>// ACSE UNDER TEST</td></tr><tr><td></td><td></td><td></td><td></td><td>16</td><td></td><td></td></tr><tr><td>SHT.220/D2</td><td>{</td><td>+</td><td>-----</td><td>X32</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>1</td><td>BI.09</td><td>// GT1 87T1/87T2 OPTD</td></tr><tr><td>SHT.220/D2</td><td>{</td><td>+</td><td>-----</td><td>2</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>3</td><td>BI.10</td><td>// GT2 87T1/87T2 OPTD</td></tr><tr><td>SHT.220/D3</td><td>{</td><td>+</td><td>-----</td><td>4</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>5</td><td>BI.11</td><td>// GT3 87T1/87T2 OPTD</td></tr><tr><td>SHT.220/D3</td><td>{</td><td>+</td><td>-----</td><td>6</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>7</td><td>BI.12</td><td>// GT1 86CBF/86B OPTD</td></tr><tr><td>SHT.220/D4</td><td>{</td><td>+</td><td>-----</td><td>8</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>9</td><td>BI.13</td><td>// GT2 86CBF/86B OPTD</td></tr><tr><td>SHT.220/D4</td><td>{</td><td>+</td><td>-----</td><td>10</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>11</td><td>BI.14</td><td>// GT3 86CBF/86B OPTD</td></tr><tr><td>SHT.220/D5</td><td>{</td><td>+</td><td>-----</td><td>12</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>13</td><td>BI.15</td><td>// ACSE LOCAL</td></tr><tr><td>SHT.220/D5</td><td>{</td><td>+</td><td>-----</td><td>14</td><td></td><td></td></tr><tr><td></td><td></td><td>-</td><td>-----</td><td>15</td><td>BI.16</td><td>// ACSE REMOTE</td></tr><tr><td></td><td></td><td></td><td></td><td>16</td><td></td><td></td></tr></tbody></table></div>														LOCATION=P3	PLANT ADAPTED CONFIGURATION	SHT.219/C2	{	+	-----	X31					-	-----	1	BI.01	// S120 CLOSE	SHT.219/C2	{	+	-----	2					-	-----	3	BI.02	// S120 OPEN	SHT.219/C3	{	+	-----	4					-	-----	5	BI.03	// S320 CLOSE	SHT.219/C3	{	+	-----	6					-	-----	7	BI.04	// S320 OPEN	SHT.219/C4	{	+	-----	8					-	-----	9	BI.05	// SEC-B OPTD	SHT.219/C4	{	+	-----	10					-	-----	11	BI.06	// SEC-C OPTD	SHT.219/C5	{	+	-----	12					-	-----	13	BI.07	// SEC-A OPTD	SHT.219/C5	{	+	-----	14					-	-----	15	BI.08	// ACSE UNDER TEST					16			SHT.220/D2	{	+	-----	X32					-	-----	1	BI.09	// GT1 87T1/87T2 OPTD	SHT.220/D2	{	+	-----	2					-	-----	3	BI.10	// GT2 87T1/87T2 OPTD	SHT.220/D3	{	+	-----	4					-	-----	5	BI.11	// GT3 87T1/87T2 OPTD	SHT.220/D3	{	+	-----	6					-	-----	7	BI.12	// GT1 86CBF/86B OPTD	SHT.220/D4	{	+	-----	8					-	-----	9	BI.13	// GT2 86CBF/86B OPTD	SHT.220/D4	{	+	-----	10					-	-----	11	BI.14	// GT3 86CBF/86B OPTD	SHT.220/D5	{	+	-----	12					-	-----	13	BI.15	// ACSE LOCAL	SHT.220/D5	{	+	-----	14					-	-----	15	BI.16	// ACSE REMOTE					16		
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الشركة الوطنية لنقل الكهرباء

NG/D2-D (2012/01)

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VECTOR

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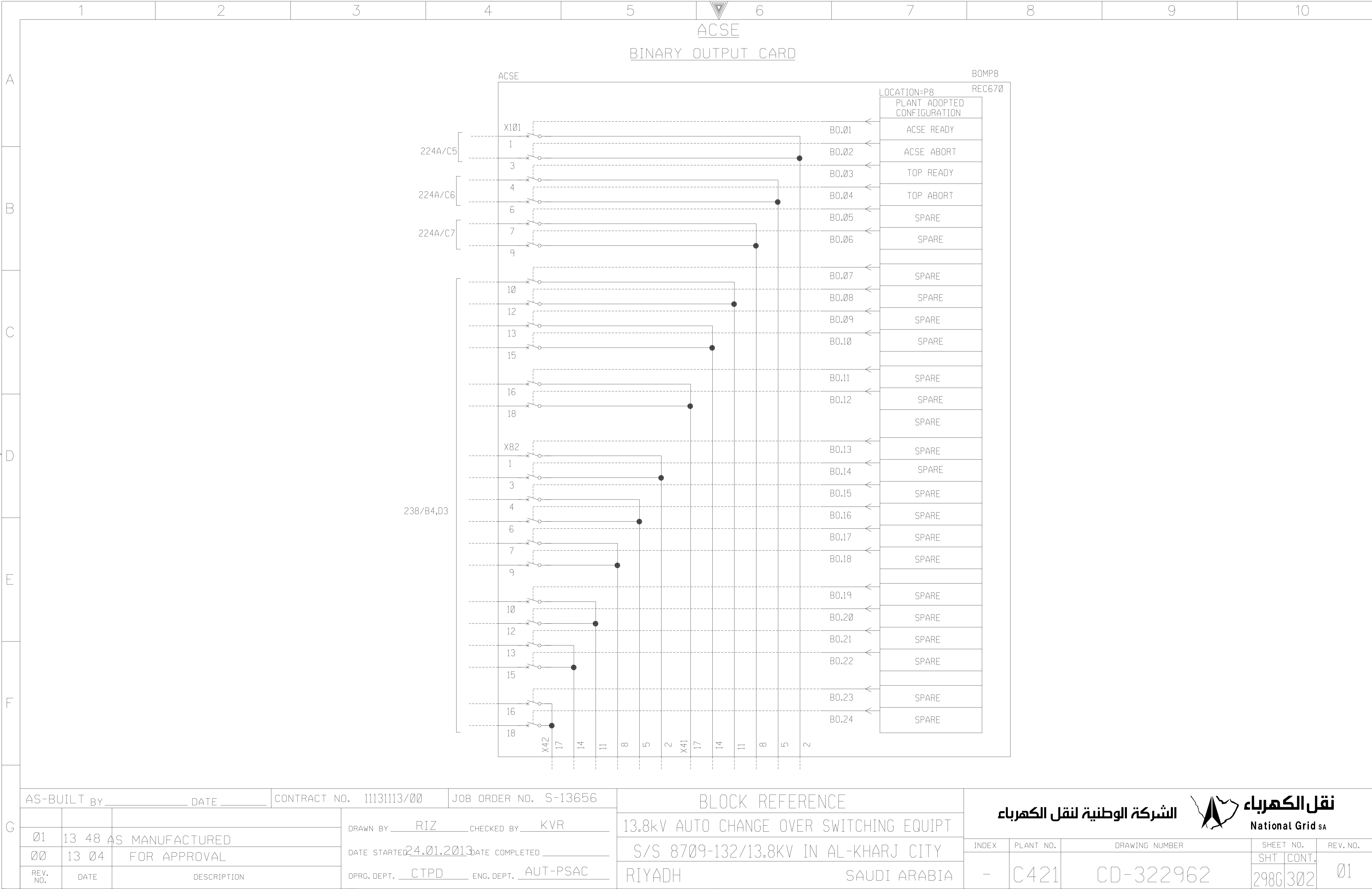
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REFERENCE	X5A CONTROL & PROTN.	223/C8	51				51	223/C8	52				52	223/C8	53				53	223/C9	54				54	223/C9	55				55	223/C9	56				56	223/C10	57				57	223/C10	58				58	223/C10	59				59	224/C1	60				60	224/C2	61				61	224/C2	62				62	224/C3	63				63	224/C3	64				64	224/C3	65				65	224/C4	66				66	224/C4	67				67	224/C5	68				68	224/C5	69				69	224/C5	70				70	224/C6	71				71	224/C6	72				72	224/C7	73				73	224/C7	74				74	224/C8	75				75	224/C8	76				76	224/B9	77				77	224/C9	78				78	224/C8	79				79	224/D9	80				80	224/D9	81				81	224/D9	82				82	224/D9	83				83	224/D10	84				84	224/D10	85				85	224/D10	86				86	224/D10	87				87	SPARE	88				88	SPARE	89				89	SPARE	90				90	SPARE	91				91	SPARE	92				92	SPARE	93				93	SPARE	94				94	SPARE	95				95	SPARE	96				96	SPARE	97				97	SPARE	98				98	SPARE	99				99	SPARE	100				100	<table><tr><td>INTERNAL REFERENCE</td><td>X5 CONTROL &amp; 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REFERENCE	X5 CONTROL & PROTN.	219/C2	1				1	219/C2	2				2	221/C2	3				3	219/C3	4				4	219/C3	5				5	219/C4	6				6	219/C4	7				7	219/C4	8				8	219/C5	9				9	219/C5	10				10	219/C6	11				11	219/C6	12				12	219/C7	13				13	219/C7	14				14	219/C8	15				15	219/C8	16				16	219/C8	17				17	219/C9	18				18	SPARE	19				19	220/C1	20				20	220/C2	21				21	220/C3	22				22	220/C3	23				23	220/C4	24				24	220/C4	25				25	220/C5	26				26	220/C5	27				27	220/C6	28				28	220/C7	29				29	220/C7	30				30	220/C8	31				31	220/C8	32				32	220/C8	33				33	220/C8	34				34	220/C9	35				35	220/C9	36				36	220/C9	37				37	220/C10	38				38	220/C10	39				39	220/C10	40				40	221/C1	41				41	221/C2	42				42	221/C2	43				43	221/C2	44				44	221/C3	45				45	221/C4	46				46	221/C4	47				47	221/C4	48				48	221/C5	49				49	221/C5	50				50	<table><tr><td>INTERNAL REFERENCE</td><td>X5 CONTROL &amp; PROTN.</td></tr><tr><td>221/C6</td><td>51</td><td></td><td></td><td></td><td>51</td></tr><tr><td>221/C6</td><td>52</td><td></td><td></td><td></td><td>52</td></tr><tr><td>221/C6</td><td>53</td><td></td><td></td><td></td><td>53</td></tr><tr><td>221/C7</td><td>54</td><td></td><td></td><td></td><td>54</td></tr><tr><td>221/C7</td><td>55</td><td></td><td></td><td></td><td>55</td></tr><tr><td>221/C8</td><td>56</td><td></td><td></td><td></td><td>56</td></tr><tr><td>221/C8</td><td>57</td><td></td><td></td><td></td><td>57</td></tr><tr><td>221/C9</td><td>58</td><td></td><td></td><td></td><td>58</td></tr><tr><td>SPARE</td><td>59</td><td></td><td></td><td></td><td>59</td></tr><tr><td>SPARE</td><td>60</td><td></td><td></td><td></td><td>60</td></tr><tr><td>222/C1</td><td>61</td><td></td><td></td><td></td><td>61</td></tr><tr><td>222/C2</td><td>62</td><td></td><td></td><td></td><td>62</td></tr><tr><td>222/C2</td><td>63</td><td></td><td></td><td></td><td>63</td></tr><tr><td>222/C2</td><td>64</td><td></td><td></td><td></td><td>64</td></tr><tr><td>222/C3</td><td>65</td><td></td><td></td><td></td><td>65</td></tr><tr><td>222/C4</td><td>66</td><td></td><td></td><td></td><td>66</td></tr><tr><td>222/C4</td><td>67</td><td></td><td></td><td></td><td>67</td></tr><tr><td>222/C4</td><td>68</td><td></td><td></td><td></td><td>68</td></tr><tr><td>222/C5</td><td>69</td><td></td><td></td><td></td><td>69</td></tr><tr><td>222/C5</td><td>70</td><td></td><td></td><td></td><td>70</td></tr><tr><td>222/C6</td><td>71</td><td></td><td></td><td></td><td>71</td></tr><tr><td>222/C6</td><td>72</td><td></td><td></td><td></td><td>72</td></tr><tr><td>222/C7</td><td>73</td><td></td><td></td><td></td><td>73</td></tr><tr><td>222/C7</td><td>74</td><td></td><td></td><td></td><td>74</td></tr><tr><td>SPARE</td><td>75</td><td></td><td></td><td></td><td>75</td></tr><tr><td>SPARE</td><td>76</td><td></td><td></td><td></td><td>76</td></tr><tr><td>SPARE</td><td>77</td><td></td><td></td><td></td><td>77</td></tr><tr><td>SPARE</td><td>78</td><td></td><td></td><td></td><td>78</td></tr><tr><td>SPARE</td><td>79</td><td></td><td></td><td></td><td>79</td></tr><tr><td>SPARE</td><td>80</td><td></td><td></td><td></td><td>80</td></tr><tr><td>223/C1</td><td>81</td><td></td><td></td><td></td><td>81</td></tr><tr><td>223/C2</td><td>82</td><td></td><td></td><td></td><td>82</td></tr><tr><td>223/C2</td><td>83</td><td></td><td></td><td></td><td>83</td></tr><tr><td>223/C3</td><td>84</td><td></td><td></td><td></td><td>84</td></tr><tr><td>223/C3</td><td>85</td><td></td><td></td><td></td><td>85</td></tr><tr><td>223/C3</td><td>86</td><td></td><td></td><td></td><td>86</td></tr><tr><td>223/C4</td><td>87</td><td></td><td></td><td></td><td>87</td></tr><tr><td>223/C5</td><td>88</td><td></td><td></td><td></td><td>88</td></tr><tr><td>223/C5</td><td>89</td><td></td><td></td><td></td><td>89</td></tr><tr><td>223/C5</td><td>90</td><td></td><td></td><td></td><td>90</td></tr><tr><td>223/C6</td><td>91</td><td></td><td></td><td></td><td>91</td></tr><tr><td>223/C6</td><td>92</td><td></td><td></td><td></td><td>92</td></tr><tr><td>223/C7</td><td>93</td><td></td><td></td><td></td><td>93</td></tr><tr><td>223/C7</td><td>94</td><td></td><td></td><td></td><td>94</td></tr><tr><td>223/C7</td><td>95</td><td></td><td></td><td></td><td>95</td></tr><tr><td>SPARE</td><td>96</td><td></td><td></td><td></td><td>96</td></tr><tr><td>SPARE</td><td>97</td><td></td><td></td><td></td><td>97</td></tr><tr><td>SPARE</td><td>98</td><td></td><td></td><td></td><td>98</td></tr><tr><td>SPARE</td><td>99</td><td></td><td></td><td></td><td>99</td></tr><tr><td>SPARE</td><td>100</td><td></td><td></td><td></td><td>100</td></tr></table>		INTERNAL REFERENCE	X5 CONTROL & PROTN.	221/C6	51				51	221/C6	52				52	221/C6	53				53	221/C7	54				54	221/C7	55				55	221/C8	56				56	221/C8	57				57	221/C9	58				58	SPARE	59				59	SPARE	60				60	222/C1	61				61	222/C2	62				62	222/C2	63				63	222/C2	64				64	222/C3	65				65	222/C4	66				66	222/C4	67				67	222/C4	68				68	222/C5	69				69	222/C5	70				70	222/C6	71				71	222/C6	72				72	222/C7	73				73	222/C7	74				74	SPARE	75				75	SPARE	76				76	SPARE	77				77	SPARE	78				78	SPARE	79				79	SPARE	80				80	223/C1	81				81	223/C2	82				82	223/C2	83				83	223/C3	84				84	223/C3	85				85	223/C3	86				86	223/C4	87				87	223/C5	88				88	223/C5	89				89	223/C5	90				90	223/C6	91				91	223/C6	92				92	223/C7	93				93	223/C7	94				94	223/C7	95				95	SPARE	96				96	SPARE	97				97	SPARE	98				98	SPARE	99				99	SPARE	100				100	<table><tr><td>INTERNAL REFERENCE</td><td>XSH SPACE HEATER</td></tr><tr><td>211/E6</td><td>1</td><td></td><td></td><td></td><td>1</td></tr><tr><td>211/F6</td><td>2</td><td></td><td></td><td></td><td>2</td></tr></table>		INTERNAL REFERENCE	XSH SPACE HEATER	211/E6	1				1	211/F6	2				2	<table><tr><td>INTERNAL REFERENCE</td><td>XTJ T.JACK</td></tr><tr><td>211/C3</td><td>1</td><td></td><td></td><td></td><td>1</td></tr><tr><td>211/C3</td><td>2</td><td></td><td></td><td></td><td>2</td></tr><tr><td>211/D3</td><td>3</td><td></td><td></td><td></td><td>3</td></tr><tr><td>211/D3</td><td>4</td><td></td><td></td><td></td><td>4</td></tr></table>		INTERNAL REFERENCE	XTJ T.JACK	211/C3	1				1	211/C3	2				2	211/D3	3				3	211/D3	4				4	<table><tr><td>INTERNAL REFERENCE</td><td>X6 ALARM SUPPLY</td></tr><tr><td>212/B5</td><td>1</td><td></td><td></td><td></td><td>1</td></tr><tr><td>212/B6</td><td>2</td><td></td><td></td><td></td><td>2</td></tr><tr><td>237/E3</td><td>3</td><td></td><td></td><td></td><td>3</td></tr><tr><td>SPARE</td><td>4</td><td></td><td></td><td></td><td>4</td></tr><tr><td>SPARE</td><td>5</td><td></td><td></td><td></td><td>5</td></tr></table>		INTERNAL REFERENCE	X6 ALARM SUPPLY	212/B5	1				1	212/B6	2				2	237/E3	3				3	SPARE	4				4	SPARE	5				5	<table><tr><td>INTERNAL REFERENCE</td><td>X4 DC CKTS.</td></tr><tr><td>213/B4</td><td>1</td><td></td><td></td><td></td><td>1</td></tr><tr><td>213/B4</td><td>2</td><td></td><td></td><td></td><td>2</td></tr><tr><td>SPARE</td><td>3</td><td></td><td></td><td></td><td>3</td></tr><tr><td>SPARE</td><td>4</td><td></td><td></td><td></td><td>4</td></tr><tr><td>SPARE</td><td>5</td><td></td><td></td><td></td><td>5</td></tr><tr><td>SPARE</td><td>6</td><td></td><td></td><td></td><td>6</td></tr><tr><td>SPARE</td><td>7</td><td></td><td></td><td></td><td>7</td></tr><tr><td>SPARE</td><td>8</td><td></td><td></td><td></td><td>8</td></tr><tr><td>SPARE</td><td>9</td><td></td><td></td><td></td><td>9</td></tr><tr><td>SPARE</td><td>10</td><td></td><td></td><td></td><td>10</td></tr><tr><td>SPARE</td><td>11</td><td></td><td></td><td></td><td>11</td></tr><tr><td>SPARE</td><td>12</td><td></td><td></td><td></td><td>12</td></tr><tr><td>SPARE</td><td>13</td><td></td><td></td><td></td><td>13</td></tr><tr><td>SPARE</td><td>14</td><td></td><td></td><td></td><td>14</td></tr><tr><td>SPARE</td><td>15</td><td></td><td></td><td></td><td>15</td></tr></table>		INTERNAL REFERENCE	X4 DC CKTS.	213/B4	1				1	213/B4	2				2	SPARE	3				3	SPARE	4				4	SPARE	5				5	SPARE	6				6	SPARE	7				7	SPARE	8				8	SPARE	9				9	SPARE	10				10	SPARE	11				11	SPARE	12				12	SPARE	13				13	SPARE	14				14	SPARE	15				15	<table><tr><td>INTERNAL REFERENCE</td><td>X61 LOCAL ALARM</td></tr><tr><td>212/D5</td><td>1</td><td></td><td></td><td></td><td>1</td></tr><tr><td>212/D6</td><td>2</td><td></td><td></td><td></td><td>2</td></tr><tr><td>237/E4</td><td>3</td><td></td><td></td><td></td><td>3</td></tr><tr><td>237/E5</td><td>4</td><td></td><td></td><td></td><td>4</td></tr><tr><td>237/E6</td><td>5</td><td></td><td></td><td></td><td>5</td></tr></table>		INTERNAL REFERENCE	X61 LOCAL ALARM	212/D5	1				1	212/D6	2				2	237/E4	3				3	237/E5	4				4	237/E6	5				5
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